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UNIVERSITY OF TORONTO

President's Report

FOR THE YEAR ENDING
30TH JUNE, 1931

1930/31

PRESIDENT'S REPORT

1930-1931

To the Governors of the University of Toronto:

GENTLEMEN:

I beg to submit the following report on the academic work of the University and University College during the twelve months ended June 30, 1931.

The total staff of the University and University College numbered 756, of whom 108 were professors, 81 associate professors, 59 assistant professors, 135 lecturers, associates (in medicine and dentistry) and instructors in the College of Education, 1 director, 1 director of field work, 371 demonstrators, fellows and instructors with sessional appointments.

The total number of students in attendance was 7,847, of whom 4,855 were men and 2,992 were women, 7,407 being registered in the colleges and faculties, and 440 in the departments. The number of students proceeding to degrees was 6,614, and to diplomas 675.

During the year two of the senior members of the staff were removed by death. Dr. Joseph S. Graham died in Bermuda on 6th January, 1931, after a long illness. He had been connected with the College of Dental Surgeons and later the Faculty of Dentistry for many years as professor of pathology, and had won the affection of his colleagues and students.

Professor William S. Milner died suddenly on April 27th, 1931. Last year after long service he had retired from the chair of ancient history in University College. He is cherished in the memory of his colleagues as a greatly beloved and deeply read scholar, and by his former students as one who stimulated them to think sincerely upon the great problems of history.

The following retired:

John Taylor Fotheringham, M.D., C.M., LL.D., professor, history of medicine; Louis Beaufort Stewart, professor, geodesy and surveying.

To the regret of their colleagues, Professor J. T. Fotheringham and Professor L. B. Stewart have, owing to the limit of age, retired from their positions. Professor Fotheringham has served the university for many years, first in clinical medicine and then as professor of the history of medicine. His high position in the medical world, both as practising physician and as director-general in command of our medical services at the close of the war, gave him prestige as a teacher, and his unusual knowledge of literature and the progress of science fitted him peculiarly for the chair of the history of medicine.

Professor L. B. Stewart, a man greatly beloved, filled the chair of surveying for thirty years. Skill, wide experience, knowledge of Canada, and fidelity were combined in a character of singular modesty. As he withdraws into retirement we feel that one of the props of the older "School" world has been removed.

The following resigned their positions:

Charles Ryle Fay, M.A. (Camb.), D.Sc. (Lond.), professor, economic history; Herbert Alexander Bruce, M.D., F.R.C.S. (Eng.), professor, clinical surgery; William Ernest Cummer, D.D.S., professor, prosthetic dentistry and dental technology; Gordon Campbell Cameron, M.D., associate professor, medical research; John Henry Iliffe, M.A. (Camb.), assistant professor, history of industrial art; Paul Michael O'Sullivan, M.A., M.B., Ph.D., assistant professor, physiology; Malcolm Hectorson Valentine Cameron, M.B., assistant professor,

surgery; Ferdinand Albert Mouré, Mus. Doc., lecturer, history of music; George Hammond Harlow, B.A.Sc., lecturer, mechanical engineering; A. C. Lewis, instructor, University Schools.

To these gentlemen the university would express its sincere thanks for the fine service, in some cases extending over many years, which they have performed.

Leave of absence was granted to the following:

Theophile James Meek, B.A., B.D. (McCorm.), Ph.D. (Chicago), professor of Oriental languages; John Gordon Andison, B.A. (Man.), Ph.D. (Col.), assistant professor of French, to study abroad; and on account of ill-health to Robert Boyd Thomson, B.A., professor of botany; Victor John Harding, D.Sc. (Manchester), professor of pathological chemistry; William George Switzer, D.D.S., associate professor of dentistry; Walter Scott Guest, B.A.Sc., assistant professor of electrical engineering; and Malcolm Hectorson Valentine Cameron, M.B., assistant professor of surgery.

The following new appointments and promotions were made during the year:

In the Faculty of Arts—Appointments:—J. L. Synge, M.A., Sc.D. (Dublin), professor of applied mathematics; H. A. Innis, M.A. (McM.), Ph.D. (Chicago), associate professor of economic geography; D. S. Ainslie, M.A., Ph.D., assistant professor of physics; L. T. Morgan, B.A. (B.C.), assistant professor of political economy; C. A. Ashley, B.Comm. (Birm.), assistant professor of accounting; C. Barnes, M.Sc. (Leeds), M.A., lecturer in physics; T. M. C. Taylor, B.A. (B.C.), M.S. (Wis.), Ph.D., lecturer in botany; D. MacGregor, B.A., lecturer in political economy; W. Plumptre, B.A. (Tor. Camb.), lecturer in political economy; O. Van der Sprenkel, B.Sc. (London), lecturer in political economy; J. Finkelman, B.A., lecturer in law; E. W. Macdonald, B.A. (Qu.), lecturer in philosophy; F. L. Kay, M.A. (N.Z.), B.A. (Camb.), lecturer in Latin; Miss Margaret Fergusson, M.A. (St. And.), B.A. (Camb.), lecturer in Latin; J. R. MacGillivray, M.A., Ph.D. (Harvard), lecturer in English; B. Debray, Ag. de l'U., lecturer in French; A. Laflamme, B.A., L. ès L. (Laval), lecturer in French; W. S. McCullough, M.A., lecturer in oriental languages.

Promotions:—H. R. MacCallum, B.A. (Qu. Ox.), from an assistant-professorship to an associate-professorship in philosophy; G. C. Patterson, B.A., from an assistant-professorship to an associate-professorship in Italian and Spanish; J. Cano, A.B. (Tol.), M.A., Ph.D. (Col.), from an assistant-professorship to an associate-professorship in Italian and Spanish; F. R. Lorriman, M.A., Ph.D., from a lectureship to an assistant-professorship in chemistry; Miss N. H. C. Ford, B.A., Ph.D., from a lectureship to an assistant-professorship in biology; W. M. Drummond, B.A. (Qu.), from a lectureship to an assistant-professorship in political economy; M. F. Crawford, B.A. (West.), M.A., from a demonstratorship to a lectureship in physics.

In the Faculty of Medicine—Appointments:—J. C. B. Grant, M.B., F.R.C.S. (Edin.), professor of anatomy; A. B. LeMesurier, M.B., associate in surgery; E. P. Lewis, B.A. (McM.), M.B., associate in psychiatry; R. H. Greey, M.D., B.Sc., lecturer in bacteriology and serology; R. S. Saddington, M.B., B.Sc., lecturer in pathology; P. M. O'Sullivan, M.A., M.B., Ph.D., lecturer in physiology; J. G. Cunningham, B.A., M.B., D.P.H., lecturer in industrial hygiene, School of Hygiene.

Promotions:—J. C. Watt, M.A., M.D., from an associate-professorship to a professorship in anatomy; R. D. Defries, M.D., D.P.H., from an associate-professorship to a professorship in epidemiology and biometrics, School of Hygiene; H. A. Cates, M.B., from an assistant-professorship to an associate-professorship in anatomy; G. H. W. Lucas, M.A., Ph.D., from an assistant-professorship to an associate-professorship in pharmacology; T. F. Nicholson,

M.B., B.Sc., from a lectureship to an assistant-professorship in pathological chemistry; R. R. Graham, M.B., from an associateship to an assistant-professorship in surgery; M. H. V. Cameron, M.B., from an associateship to an assistant-professorship in surgery; D. E. Robertson, M.D., from an associateship to an assistant-professorship in surgery; E. S. Ryerson, M.D., C.M., from an associateship to an assistant-professorship in surgery.

In the Faculty of Applied Science—Appointments:—B. deF. Bayly, B.A.Sc., lecturer in electrical engineering; M. J. C. Lazier, B.A.Sc., lecturer in civil engineering (Municipal and Structural); W. L. Sagar, B.A.Sc., lecturer in civil engineering (Municipal and Structural); R. R. McLaughlin, M.A.Sc., M.A., Ph.D., lecturer in chemical engineering; P. V. Jermyn, B.A.Sc., lecturer in engineering drawing.

Promotions:—W. M. Treadgold, B.A., from an associate-professorship to a professorship in civil engineering (Surveying and Geodesy); J. A. Newcombe, B.Sc. (Lond.), A.R.S.M., from an assistant-professorship to an associate-professorship in metallurgical engineering; V. G. Smith, B.A.Sc., from a lectureship to an assistant-professorship in electrical engineering; C. G. Heard, B.A.Sc., from a lectureship to an assistant-professorship in mechanical engineering.

Faculty of Household Science—Appointments:—Miss I. L. Courtice, B.A., M.A. (Col.), lecturer in household science.

Promotions:—Miss G. R. F. Rose, M.A., from an instructorship to a lectureship in household science; Miss J. R. Panton, M.A., from an instructorship to a lectureship in food chemistry.

School of Graduate Studies—Appointments:—J. C. McLennan, O.B.E., Ph.D., D.Sc. (Man.) (Liv.), LL.D., F.R.S., Dean.

Ontario College of Education—Appointments:—Miss D. Thompson, B.A., lecturer in library science; A. G. Croal, M.A. (Qu.), B.Paed., instructor in science, University Schools.

Faculty of Dentistry—Promotions:—C. A. Corrigan, D.D.S., from an associateship to an associate-professorship in orthodontia; C. A. Kennedy, D.D.S., from an associateship to an associate-professorship in orthodontia; H. A. Hoskin, D.D.S., from an assistant-professorship to an associate-professorship in dentistry; F. M. Lott, D.D.S., B.Sc., from an associateship to an associate-professorship in prosthetic dentistry; G. C. Cameron, M.D., from an instructorship to an associateship in bacteriology and pathology; R. J. Godfrey, D.D.S., from a demonstratorship to an associateship in prosthetic dentistry.

Medical Research—Appointment:—E. J. King, M.A. (McM.), Ph.D., assistant professor.

During the session 1930-31 the work of the University of Toronto continued to prosper. Serious though the economic condition of the country was the attendance was greater than ever. The confidence of the university in the ability of the schools of the province to rise to the increasing demands at entrance has been justified. Our experience in medicine, applied science and the other professional faculties has led us to expect, after a slight recoil when the barriers have been raised, a vigorous resiliency. Entrance records are constantly being beaten. Therefore, it is to be expected that this will be the case in the faculty of arts as a result of the coming into effect in September, 1931, of the regulation abolishing the pass work of the first year. Numbers will soon rise, but more than that a permanently better quality of work will be required for the arts degree. On reviewing the last twenty-four years I find satisfaction in this reiterated proof of the ability of the schools of the province to send us the students we ask for, and of those who come to the university with better preparation to do a finer average quality of work. I see very little evidence to lead me to suppose that scholarship is held in low repute by our constituency. Nor do I believe that the complaint, so often heard in some of the American colleges, of

extravagant honours being paid to athletes, can justly be taken up in Toronto. In fact, the reports of the Athletic Directorate, both men and women, make encouraging reading.

The gathering of students in residences in arts in collegiate units, and the influence of unions on the life of the women students in arts, and of Hart House have done a great deal to heighten the community feeling, and to remove asperities which might develop in a large university were individualism left to its own solitude. Occasionally I am asked as to whether fraternities should not be brought under the oversight of the university. If they should interfere, as they are reported to do in some American universities, with the healthful life of our community it might become necessary to do so, but the tradition of this place is against such interference, and Hart House is the dominating and healthful centre for all men's activities. I should rather see a rapid increase made in men's residences than an attempt to regulate scattered fraternity houses.

The university owes a great deal to the many members of the teaching staff who in the past have shown and still continue to show deep and self-sacrificing interest in the work of the manifold committees in Hart House and Women's Unions. They have not only held up the hands of warden, deans, secretaries and others, but have created a feeling of kindliness between students and teachers. On his retirement I may mention the excellent work done by Professor C. H. C. Wright, for twenty-six years on the Athletic Directorate.

Dr. Malcolm Wallace reports that University College has received an unusually large number of substantial gifts during the past year, which is a most gratifying proof of public confidence. The College has also sought to make some return beyond the ordinary good fulfilment of its primary duties as a college, by arranging courses of public lectures, which were well received.

Widespread satisfaction has been expressed, especially in the faculty of arts, at the action of the Governors in authorising the issuing by the Publishing Committee of the University of a new quarterly to contain articles on literary, philosophical and scientific subjects. The fact that Professor Brett has accepted the editorship gives confidence in regard to its success.

It is not widely known that the publishing activity of the university has been growing rapidly for many years. *The Canadian Historical Review*, a journal of high repute, is maintained by the university, and its editors have always been members of our staff though enjoying the support of a committee of the leading historians of the Dominion. It sprang from the "Annual Review of Historical Literature," created and issued for many years by Professor G. M. Wrong and Mr. H. H. Langton. The Press Committee also, having taken over the work of the "University Studies," is now publishing series of most useful monographs and books, chiefly by members of our own staff, which are bringing great credit to this university.

Real though the development of the intellectual life of the university has been, it is by no means yet offering to the province and the Dominion the facilities that should be provided. I may refer here to the report of the Dean of the School of Graduate Studies, Dr. McLennan, who has entered upon these new duties with great enthusiasm. Unfortunately, we cannot go much faster or further until the library has been extended as to its accommodation and enlarged as to its contents. No more real advance can be made in the immediate future than just by this expansion. In fact, to provide new chairs and a large number of scholarships for our postgraduate students and then to offer them a congested and insufficiently stocked library would be to make haste in the wrong way. Of course if possible all three should go together. The pressure for more laboratory equipment, except in chemistry, is less urgent than that in the library. As the librarian says, the university has outgrown the library; it is of the grade of that of an American college rather than of a university of international repute. And the need is emphasised by the attendance; 543 graduate students were enrolled, 69 more than last year, of whom 141 were from outside Ontario, 25 from the

United States, 24 from Great Britain and the Empire, an increase of 50 per cent. from outside Canada. There were 107 candidates for Ph.D. distributed over a very wide number of subjects.

On looking back over the period since the War it is evident that the School of Graduate Studies has assumed a position of great importance in the university. Not less so, indeed concomitantly, has interest developed in research. So universal has it become that it is almost invidious to single out individuals and departments. Many of these researches seem to have little direct bearing upon the practical problems of life, though perhaps most are in subjects which may be applied to medicine or mechanical affairs.

The most outstanding event in the Faculty of Medicine was the opening of the Banting Institute, which was rendered memorable by the presence of many distinguished guests, of whom one, the Right Honourable Lord Moynihan, was the guest of honour and delivered a striking address. This building bearing the name of one of our own graduates will always associate Dr. Banting and his service to mankind with this university. It provides accommodation, by no means too great even in this most recent structure, for the most important departments in the latter half of the medical course.

Dr. Grant, as successor to Dr. McMurrich, has already been recognised as a valuable addition to the staff, and under him the department of anatomy is expected to make good progress.

The development of the School of Hygiene, now one of the leading institutions of its kind, has so impressed the Rockefeller Foundation that the trustees have made a further grant of $600,000, especially for a new department of chemistry in relation to hygiene and for further research work in public health. A new wing for this purpose is to be erected by funds provided by the government.

In Applied Science all forecasts lead us to expect that the recent rapid increase in numbers will continue, and therefore that the problems of accommodation, already insistent enough, will immediately become more urgent. The splendid extension to the Mill building, in the securing of which we owe much to the support of the Honourable Charles McCrea, will meet the needs of only one department. The demands of chemical engineering are probably the next most urgent. Nor are we yet educating too many engineers; last spring the graduates of this faculty were quickly absorbed.

The number of graduates in the various courses of Household Science are growing rapidly with the increasing demands for them to undertake dietetic work in hospitals and in business institutions, as well as for teaching positions in the high schools and collegiate institutes of the province.

Last year saw the largest graduating class in the history of the Faculty of Forestry, some of whom owing, as the Dean says, to the stagnancy in the pulp and paper industry and the curtailment of the Dominion Forest Service, were unable to secure employment. This period of readjustment will we hope soon be over and with it we may expect that the demand for foresters will rise again.

Dr. Ernest McMillan, the Dean of the Faculty of Music, though a very busy man carrying on the finest traditions of musical education and providing inspiration to the music lovers of the city, has been eager to do what he can to stimulate the desire among students for the best music; and among many other efforts, his brilliant presentation of Bach's St. Matthew's Passion for the sixth time is not the least important.

To the widespread regret of those who for years have frequented with pleasure the organ recitals given by Dr. Mouré in Convocation Hall, he was compelled by the strain on his health to abandon them; as also his lectures in the faculty of music. We are deeply indebted to him for the contribution he has made over many years to this side of the university's life. We thank also Dr. MacMillan and the Toronto organists who gave a short series of recitals, as also Dr. MacMillan and Mr. Leo Smith for assuming the additional burden of the lectures formerly given by Dr. Mouré.

In the Faculty of Dentistry we observe that the turn seems to have been taken in the matter of attendance, and numbers are on the rise. As in medicine, so in dentistry, widespread attention is being given to problems of education, and Dean Seccombe is chairman of a commission appointed by the American Association of Dental Schools and supported by the Carnegie Corporation to consider how the curriculum of studies should be improved.

A story of rapid growth comes from the Director of Extension Work, especially in respect of the teachers' courses. In eleven years, 239 teachers, while carrying on their ordinary duties, have on Friday afternoons, Saturday mornings and in the summer session taken instruction which has successfully led to the B.A. degree. During the past year 495 have been on the books. This is a fine token of the earnestness and high quality of our teachers.

It seems probable that a new field for popular instruction may open up through the radio. The Director intimates that he has good hope that in the next session he will be able to initiate courses and individual short lectures which will be disseminated far and wide through the province and beyond by this new method of propagating ideas, which has been turned to great educational advantage in England.

Hart House is now so well established as a major factor in the life of the men students that I need in this report merely express to the Honourable Vincent Massey and the Massey Foundation our thanks for once more, as from the beginning very often, manifesting their constant interest in the house by contributing handsomely to the extension of the kitchens and by providing a new and much needed room for the warden, where he can carry on more effectively the hospitality towards students which has given unique value to his office.

Though last year the university was not successful in winning many intercollegiate championships, that is but an incident of no special significance, the really important fact being that over 1,705 men took part in competitive sports of many kinds, and that in spite of their lack of accommodation, 352 women received physical training.

Even more indicative of the physical quality of our students is the fact that of the men 92 per cent. and of the women 88 per cent. were thoroughly fit for any kind of physical exercise. This percentage having been maintained practically since our records began, may be taken as an index of our student health. Also, Dr. Porter, the director of health for men, has always reported a most satisfactory condition as regards freedom from venereal disease, there being less than one case in every one thousand men of those compulsorily examined in the first two years.

The corner stone of the new residences for women in University College was laid with appropriate ceremony on October 6, and their completion will inaugurate a new era in the life of University College, made possible by the bequest of the late E. C. Whitney, Esq.

Relief will be afforded the College of Education by the extension to its building which will be completed by the opening of the new academic year, and resulting development in the character of its work may be confidently expected.

Happily the Botany Building is well on its way; also, it is expected that by the re-conditioning of the building formerly occupied by McMaster University, reasonably good accommodation may be provided for some years for the departments of political economy, commerce, and social science.

During the session the following special lectures were delivered:

On the Alexander Foundation a course of three lectures by Professor Irving Babbitt, department of comparative literature, Harvard University, on "Wordsworth and Modern Poetry"; five lectures by Professor Alexander Meek, University of Durham, on "The Conditioning of the Egg," "The Conditioning of the Soma," "The Morphology of Evolution," "The Psychology of Evolution," "Psychogenesis and Evolution"; two lectures by Professor R. S. Conway of the

University of Manchester, on "Imperium et Libertas," "Vergil as a herald of Christmas"; two lectures by Professor Arthur Haas, University of Vienna, on "J. W. Gibbs and Modern Atomic Theory," "Light Corpuscles, Material Waves, and the Laws of Physics"; the Donald C. Balfour Lectureship in Surgery, by Dr. Harvey Cushing, professor of surgery, Harvard University, on "The possible relation of the diencephalon to peptic ulcer"; two lectures by Professor Michael West, principal of Teachers' College, Dacca, India, on "The teaching of reading in a foreign language," "An experiment in foreign language teaching"; a lecture by Dr. G. Elliott Smith, professor of anatomy, University of London, on 'Sinanthropus."

The department of physics arranged a series of seven lectures by Professor H. A. Kramers, Utrecht University, Holland, on "Wave Mechanics and Spinning Electron," "Wave Mechanics and Kinematical models of Atoms"; "Rotation of Molecules," two lectures on, "Magnetical properties of gases, liquids and solid bodies," "Dispersion and Magnetic Rotation," "The Limits of the Applicability of Modern Quantum Theory."

The department of philosophy arranged a series of lectures and discussions at which Professor M. R. Cohen of the College of the City of New York, Professor S. L. Joshi of Dartmouth College, Professor E. G. Spaulding of Princeton University, and Professor C. M. Hendel of McGill University took part. The subjects of the discussions were "Problems in Law and Morals," "Is Idealism a final philosophy?" and "Freedom and Necessity."

Professor Joshi gave a public lecture on "Social and Political Aspects of Philosophy in India," and Professor Cohen on "The Distrust of Reason in Contemporary Thought."

A series of six organ recitals was given in Convocation Hall, two by the university organist, Dr. F. A. Mouré, and one each by Dean Ernest MacMillan, Dr. Harvey Robb, T. J. Crawford, Esq., and R. Tattersall, Esq.

Three special convocations for the conferring of honorary degrees were held as follows:

August 16, 1930, upon the Rt. Hon. the Viscount Dunedin, P.C., G.C.V.O., Lord of Appeal in Ordinary; the Rt. Hon. Lord Tomlin, P.C., B.C.L., Lord of Appeal in Ordinary; Sir William Allen Jowitt, K.C., M.P., Attorney-General of England; the Rt. Hon. Sir John Simon, P.C., G.C.S.I., K.C.V.O., M.P.

September 16, 1930, in connection with the formal opening of the Banting Institute, upon the Rt. Hon. Lord Moynihan of Leeds; Dr. Thomas Stephen Cullen; Charles Seward Blackwell, Esq.; and Davidson Black, M.A., M.B. (D.Sc.).

May 26, 1931, upon His Excellency the Earl of Bessborough, P.C., G.C.M.G., Governor-General of Canada; the Rt. Hon. Richard Bedford Bennett, P.C., K.C., LL.B., Prime Minister of Canada; and the Hon. George Stewart Henry, B.A., LL.B., Prime Minister of Ontario.

I have pleasure in reporting the following among other honours which have come to members of our staff during the year:

Dr. Banting has been presented with a fellowship of the Royal College of Surgeons of London, and in the autumn of the present year a like honour is being paid to him by the College of Physicians of Edinburgh; Dean Ernest MacMillan has been presented with a fellowship of the Royal College of Music of London; the Fred Morgan Kirby Foundation lectures at Lafayette College were delivered by Professor W. P. M. Kennedy on "Some Aspects of the Theories and Workings of Constitutional Law."

Professor T. J. Meek has journeyed afar to Iraq in order to carry on his researches into the most ancient Sumerian and Accadian civilisations and has brought back tablets and other archaeological objects of the highest value.

Professor W. A. Parks visited the Museums of South America for palaeontological objects.

Also the University sent Professor M. A. Buchanan, head of the department of Spanish, to represent it at the British Exhibition which was held at Buenos Aires last winter.

Among the interesting events of the academic year was the visit of their Imperial Highnesses, Prince and Princess Takamatsu of Japan, who spent a portion of one morning within the university.

Also, following the visit of the headmasters of a year ago, there was in April a delegation of twelve headmistresses of British Schools for Girls who spent several days in Toronto on their tour through the Dominion.

During the year the University has received the following benefactions, totalling $756,789.98:

From the Rockefeller Foundation, Hygiene Endowment, $600,000; D. A. Dunlap bequest, $50,000; D. A. Dunlap memorial scholarship, $1,000; Laura Spelman Rockefeller for child research, and premium, $25,000 and $9.38; Eaton endowment, $25,000; Carnegie Corporation, "educational research," $10,000; Rockefeller Foundation, for paediatrics, $7,995.00; estate of late Dr. F. LeM. Grasett, Lister prize in Clinical Surgery, $5,000; Graduate Fellowships: Estate of late Sir Edward Kemp, $500, Imperial Oil Limited, $500, the late Colonel R. W. Leonard, $500, the Robert Simpson Company, $500, Sir Joseph Flavelle, $1,000, Canadian Pacific Railway, $1,500; Faculty of Dentistry: J. P. Bickell, Esq., $3,000, Canadian Dental Research Foundation Fund, $500, Ontario Dental Association Fellowship, $250, Ash Temple Scholarship, $250, J. B. Willmott Scholarship, $250; estate of late Col. H. J. Grasett, C.M.G., Grasett Memorial Scholarship in Classics, $3,750; Gertrude Lawler Memorial Scholarship in English and History, $3,000; Flavelle-Peacock Lectureship: Sir Joseph Flavelle, $1,250, E. R. Peacock, Esq., $1,250; Mrs. Elizabeth S. Vander Smissen, Vander Smissen Scholarship, $2,500; University College Women's Undergraduate Association, $2,263.52; J. H. Gundy, Esq., the William E. Wilder Fellowship, $1,500; Social Science Scholarships: Community Welfare Councils of Ontario, $800, Anonymous, $700; S. R. Parsons Scholarship, $750; E. C. Whitney bequest, $706.86; Sir Edmund Walker Scholarship, $600; Gertrud Davis Exchange Fellowship, $500; Robert Bruce Scholarship, $486.02; T. M. Porter Special Scholarships, $480; University College Alumni Scholarship, $400; Maurice Cody Scholarship in University College, $125; Maurice Cody Memorial Scholarship in Modern History, $160; Maurice Cody Memorial Scholarship in University Schools, $25; Mrs. G. M. Kilgour, John McCrae Scholarship, $275; Star Printing and Publishing Company, Botanical Research, $250; Consolidated Mining and Smelting Company of Canada Limited, Botanical Research, $250; University Schools Scholarships: Hon. N. W. Rowell for Langford Rowell Scholarship, $100, Sir John Eaton Memorial, $120; Ontario Association of Architects Scholarship, $200; Boiler Inspection and Insurance Company Scholarship, Mechanical Engineering, $150; Robert Simpson Company Scholarship, $150; Rev. Dr. H. J. Cody Scholarship, $125; Darling and Pearson Prize in Architecture, $100; Delta Phi Epsilon Scholarship, $100; J. J. Gibson Matriculation scholarship, $100; T. H. Barton, Esq., for Jardine Memorial Prize, English Verse, $100; Toronto Brick Company, prizes in architecture, $100; University College Alumnae Scholarship, $100; St. Margaret's College Alumnae Scholarship, $75; McCaul Scholarship in Classics: Principal M. Hutton, $25, A. M. Stewart, Esq., $25, G. A. H. Fraser, Esq., $25; Langford Rowell Scholarship, Law, $50; Canadian Engineering Prize, $50; A. H. Jarvis Bursaries, $50; Mathematics Scholarship, Professors Beatty and Pounder, $50; Hon. Charles McCrea for Dent McCrea Scholarship, $50; Dr. R. A. Reeve prize, $50; B. A. A. S. Fund for Prize Books, $33.80; American Society of Heating and Ventilating Engineers, Ontario Chapter, prize, $25; Engineering Institute

of Canada, prize, $25; Professor F. Tracy prize in Ethics, $20; University College Alumnae prize in English, $10; Squair French Library Fund, $5.40.

I should here refer to the magnificent offer made to the Governors by Mrs. Dunlap, to present the University with an observatory and a 74-inch telescope, to be erected in memory of her husband, the late D. A. Dunlap, Esq. The telescope, which is now under construction in England, should be one of the greatest of its kind, and no more suitable memorial could be devised for Mr. Dunlap, interested as he was in astronomy and a generous benefactor of the University.

All of which is respectfully submitted.

(Signed) R. A. FALCONER,
President.

November 12, 1931.

APPENDIX A

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science and Engineering.
(4) Report of the Dean of the Ontario College of Education.
(5) Report of the Secretary of the Faculty of Household Science.
(6) Report of the Dean of the Faculty of Forestry.
(7) Report of the Dean of the Faculty of Music.
(8) Report of the Dean of the School of Graduate Studies.
(9) Report of the Dean of the Faculty of Dentistry.
(10) Report of the Director of the School of Hygiene.
(11) Report of the Librarian.
(12) Report on Research.
(13) Publications.
(14) Report of the Department of University Extension and Publicity.
(15) Report of the Director of the Department of Social Science.
(16) Report of the Director of the Department of Public Health Nursing.
(17) Report of the Director of the Department of Military Studies.
(18) Report of Health Services.
(19) Report of the Warden of Hart House.
(20) Report of the Director of the Connaught Laboratories.
(21) Statement regarding the Museum of Archaeology.
(22) Statement regarding the Museum of Biology.
(23) Statement regarding the Museum of Geology.
(24) Statement regarding the Museum of Mineralogy.
(25) Statement regarding the Museum of Palaeontology.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE

(Professor M. W. Wallace, M.A., Ph.D.)

I have the honour to submit to you the following report on the activities of University College during the session 1930-1931:

During the past session the College has received the following gifts:

(*a*) A large sum of money left in trust for the purpose of establishing scholarships in the college, according to the provisions of the will of the late Colonel R. W. Leonard.

(*b*) The sum of $5,000 bequeathed by Colonel H. J. Grasett, C.M.G., for the purpose of establishing a scholarship in third year classics in memory of his brother, Mr. G. R. Grasett, a distinguished classical graduate of this college.

(*c*) A scholarship of the annual value of $125, founded by subscriptions in memory of Miss Gertrude Lawler, B.A., LL.D., to be awarded in the first year of the honours course in English and history.

(*d*) A scholarship of the annual value of $100 from Mrs. Vander Smissen, in memory of her husband, Professor W. H. Vander Smissen, late professor of German in University College. This scholarship will be awarded to the student who stands highest in first-class honours in German of the fourth year course in modern languages.

(*e*) The sum of $2,263.52 contributed by the University College Women's Undergraduate Association, as a contribution to the furnishing of the new women's residences.

Mr. C. E. Miller, fellow in mathematics, has been appointed exchange fellow on the Gertrud Davis Foundation for the coming year. Mr. Miller will pursue his studies in mathematics at Göttingen University. Mr. Victor Lange, of Leipzig, has been the German exchange fellow during the present session on the same foundation and has successfully completed the work leading to a master's degree in English in this University. There is every reason for congratulating ourselves on the success of this experiment in international exchange of students.

Professor T. J. Meek, of the department of Oriental languages, has been absent throughout the year as annual professor in the American School of Archaeology at Bagdad. Professor J. G. Andison, of the French department, has also had leave of absence during the second term of the session in order to study in France. Professor de Champ has been granted leave of absence for the next session—after thirty-five years of continuous teaching in the French department. In February last, Professor de Champ had the very great honour of being created Chevalier of the Legion of Honour by the French government, an event which gave great pleasure to his colleagues and friends.

The Alexander Lectures were delivered during the month of November by Professor Irving Babbitt, of Harvard University, on the subject, *The Primitivism of Wordsworth*. Sir William Craigie, at present a member of the English staff in the University of Chicago, has accepted our invitation to deliver the next course on this foundation, when he will discuss *The Northern Influence in English Literature*.

A course of six public lectures was given in the West Hall by members of the college staff during the winter months.

Work on the new women's residences has gone forward steadily throughout the year and is now approaching completion. The beautiful group of Georgian buildings will accommodate about 155 students, besides the necessary staff. No effort has been spared to make the new residences beautiful in detail and com-

modious, and it would be difficult to over-estimate the role which they are destined to play in the life of our women students.

Miss Kilpatrick, who has given efficient and devoted service for the past two years as acting dean of women, is withdrawing at the end of the present session. The college has been most fortunate in securing as dean Miss Marion Ferguson, one of our own graduates, with a wide experience in the work of the Young Women's Christian Association. Miss Sophie Boyd, at present head of Queen's Hall, will become head of one of the new residences, Miss Irene Biss, lecturer in economics, of another, and Miss Margaret Fergusson, lecturer in classics, of the third. Many of our women students will still find it impossible to secure residential accommodation throughout their course, but it is hoped that the great majority will be able to live in residence during three of the four years.

It is impossible at a time like this not to be more keenly conscious of the lack of similar provision for the men of the college. Many students whose natural affiliations are with University College, whose parents in many cases are graduates of the college, elect to enrol in other colleges or other universities because of our inability to offer them the advantages of residence life.

The whole college has been saddened by the sudden death of Professor W. S. Milner on April 27. Professor Milner retired two years ago after forty years of active service in the college. His devotion to classical studies and to the college is witnessed in the fact that he left a substantial sum of money to the college as residuary legatee, for the purpose of establishing a scholarship in ancient history.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE

(*Doctor A. Primrose*)

A noteworthy event in the history of the Faculty of Medicine was the opening of the Banting Institute on September 16th, 1930. Lord Moynihan of Leeds, president of the Royal College of Surgeons of England, performed the official ceremony. The occasion provided an opportunity for many of our alumni to gather and do honour to their alma mater; in addition, many distinguished representatives from sister universities and colleges in different parts of the world were present.

In his formal address, Lord Moynihan paid a fine tribute to Dr. Banting because of the benefit he had conferred upon humanity in the discovery of insulin; he spoke in generous terms of the achievements of the Medical School of the University of Toronto and of the reputation it had attained. He also unveiled a portrait of Lord Lister, painted by Mr. E. Wyly Grier and presented by the late Dr. F. LeM. Grasett and Dr. H. St. George Baldwin, both of whom were house surgeons with Lister. At a special convocation held in connection with the proceedings, honorary degrees were conferred upon Lord Moynihan, Mr. C. S. Blackwell, Professor Thomas S. Cullen and Professor Davidson Black. Convocation was followed by a reception and garden party in the quadrangle of University College.

In the evening a dinner was tendered by the Governors of the University to the recipients of honorary degrees, delegates from other universities and medical colleges, members of the British Medical Association, representatives of the Provincial Government, the City of Toronto, medical associations and licensing boards, hospital trustees and the heads of faculties and colleges together with members of the faculty of medicine. The Rev. Dr. Cody presided as chairman of the board of governors.

The Banting Institute, which is situated on the north side of College street, is directly opposite the Toronto General Hospital, with which it is connected by a tunnel under the street. It houses the laboratories of the Banting and Best department of medical research; the department of pathology and bacteriology, pathological chemistry, together with the clinical departments of medicine, surgery, obstetrics and gynaecology, ophthalmology and oto-laryngology. These laboratories, which are splendidly equipped, afford excellent facilities for work in these various departments.

The portrait of Lord Lister is permanently placed in the library of the Banting Institute and immediately below it, embedded in the wall, is a brick with a suitable inscription stating that it was removed from Lister's ward in the old Glasgow Royal Infirmary, now demolished. The brick was presented by Emeritus Professor I. H. Cameron.

In the last report of the dean, reference was made to the loss sustained by the faculty and university in the retirement of Professor J. P. McMurrich from the chair of anatomy. Dr. J. C. B. Grant, formerly head of the department of anatomy in the University of Manitoba, has been appointed to succeed him. Professor Grant is an honour graduate in medicine of the University of Edinburgh and a fellow of the Royal College of Surgeons, Edinburgh. He served with distinction during the Great War as medical officer in the Grenadier Guards and later with the Black Watch, winning the military cross with bar.

Early in his career, Dr. Grant had worked with Cunningham and Robinson in Edinburgh, and with Howden in Newcastle. Then, after the war he went to Winnipeg, where he attained great success as a teacher of anatomy. The following appreciation of his services in the University of Manitoba was published when he retired from that school to become head of the department in Toronto:— "With practical knowledge of the problems of medical work, he has ever kept before him the fact that a course in anatomy is not merely or even essentially a training in pure science; it is designed as a foundation for the exercise of a calling —the art of medicine. Those who, as undergraduates, have come under his influence are never likely to forget the lucid exposition, the graphic presentation, the insistence upon fundamental principles with which he has vitalised a science of details." Since coming to Canada, Dr. Grant, in addition to his teaching activities, has been engaged in important anthropological research among the Indians of the far north.

On August 21st, 1930, Dr. Adam H. Wright died. He graduated in arts from the University of Toronto in 1866 and, after studying medicine in the old Toronto School of Medicine, he graduated in 1873. He was the first secretary of the reorganised faculty of medicine in the University of Toronto, a position which he held from 1887 to 1893. He was professor of obstetrics from 1887 to 1912. Many old graduates in medicine will recall the dominating yet kindly influence he exercised in the early days of the faculty, as well as the great personal affection he had for the students whom he befriended in the most whole-hearted fashion.

Dr. H. T. Machell, associate professor of paediatrics from 1903 to 1919, died on November 12th, 1930. Dr. A. H. Perfect, assistant professor of clinical surgery 1923-1924, died on February 9th, 1931, and on April 23rd, 1931, Dr. Herbert G. Willson, senior demonstrator of anatomy, died. We also note with regret that one of our distinguished graduates, Dr. C. J. O. Hastings, who with great ability directed the Department of Health of the City of Toronto for many years, died on January 19th, 1931.

The late Dr. Frederick LeM. Grasett, emeritus professor of surgery, generously donated a sum of five thousand dollars for the purpose of endowing a prize to be known as the Lister Prize in Surgery.

Six years ago, a School of Hygiene was established in the University of Toronto under the directorship of Dr. J. G. Fitzgerald, professor of hygiene and

preventive medicine. He is also director of the Connaught laboratories. The establishment of the school was made possible by a gift of $650,000 from the Rockefeller Foundation. On April 29th, 1931, the Board of Governors of the University announced an additional gift from the Foundation of $600,000, and provision for a grant from the Ontario Government of $18,000 annually. These grants will provide for much needed expansion of the School of Hygiene, which is to-day serving the whole of Canada. Last session 275 students, Canadian and foreign, received instruction in the school.

The Donald C. Balfour lecture in surgery was delivered in Convocation Hall on April 8th, 1931, by Dr. Harvey Cushing, professor of surgery in Harvard University. His subject was "The possible relation of the diencephalon to peptic ulcer." After the lecture the usual Lister Day luncheon at the York Club was attended by many lay and professional representatives of the university and hospitals.

On December 4th, 1930, Professor G. Elliott Smith of University College, London, delivered a lecture in Convocation Hall on "The Significance of the Peking Man." Professor Smith had recently returned from China. He demonstrated by means of lantern slides the skull of *Sinanthropus pekinensis*, a new genus and species of the human family, created by Professor Davidson Black, on the evidence deduced by him from the examination of a tooth found in fossil beds in October, 1927. The complete brain-case of *Sinanthropus* was discovered in December, 1929. Dr. Davidson Black, a distinguished graduate in medicine of the University of Toronto, is professor of anatomy in Pekin Union Medical College.

The Charles Mickle Fellowship is awarded annually to "that member of the medical profession who is considered by the council of the faculty of medicine to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science." The fellowship for this year was awarded to Sir Charles Scott Sherrington, O.M., G.B.E., M.D., D.Sc., F.R.C.P., F.R.C.S., F.R.S., professor of physiology, Oxford University.

On February 2nd, 1931, a dinner was tendered to Lieut.-Col. A. D. LePan, in recognition of his services as superintendent of buildings and grounds of the University of Toronto. The chair was occupied by the dean of the faculty of medicine.

Professor J. C. Watt was promoted by the Board of Governors to the status of professor of anatomy. Emeritus Professor J. P. McMurrich received the honorary degree of doctor of laws from the University of Toronto. He has been appointed Canadian representative of the Osler Club in London and honorary member of the American Society of Naturalists. Professor F. G. Banting was made an honorary fellow of the Royal College of Surgeons of England. Dr. Clarence M. Hincks has been appointed general director of the National Committee for Mental Hygiene of the United States. He will continue his connection with the work in Canada. Dr. T. Clarence Routley, general secretary of the Canadian Medical Association, received the honorary degree of doctor of laws from Queen's University. Dr. Goldwin Howland was elected an honorary member of the American Association of Occupational Therapy. Professor C. H. Best was made a fellow of the Royal Society of Canada. Dr. G. R. Pirie was made a fellow of the Royal College of Physicians, London. Professor E. F. Burton was elected president of the Royal Canadian Institute. Dr. Harris McPhedran was elected president of the Academy of Medicine, Toronto. The dean of the faculty of medicine was elected president of the Canadian Medical Association. Professor W. E. Gallie delivered the Hodgen lecture before the combined Medical and Surgical societies of St. Louis in January, 1931. The dean of the faculty of medicine delivered the Shattuck lecture on the one hundred and fiftieth anniversary of the founding of the Massachusetts Medical Society in Boston in June, 1931.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING

(C. H. Mitchell, C.B., C.M.G., C.E.)

Again there is gratification in the academic success of this faculty during the past session. The work of the staff and students alike has attained a still higher standard.

The annual examinations, held in January and April, directed toward maintaining this high standard, disclosed in various instances a noticeable advance in scholarship and application on the part of students in all years. It was observed, however, that in the first and second years there was a greater percentage of failures, somewhat out of line with the customary percentages in recent years.

In the case of the second year, this has probably been due not only to increasing standards, but to the application of more rigidity in respect to students who, coming up from the first year, had been near the passing line last year. This will have a beneficial effect if, as appears likely, it will lead to the establishment of higher examination standards.

With respect to the first year, there was a percentage of failures of nearly 24 per cent. This is 4.7 per cent. higher than the average of the past six years and approximates the slightly higher of two years ago. An endeavour has been made to account for this, but analysis of examination results does not often yield sufficient answer. It is thought, however, that while this high percentage of first year failures may be due partly to increasing standards, some explanation may be found in the composition of the year. Students have more than ever, recently, crowded into this faculty, attracted by the character and probable future of the engineering profession in relation to the progress of the country. When such occurs, there is bound to be a larger percentage of first year men who may prove to be unsuited to the type of academic work peculiar to this faculty, or who, perhaps, are indifferent workers. Experience in the past at such periods seems to bear this out.

The greatly increased attendance of students in this faculty is demanding the serious attention of both the staff and the faculty council. The serious side of this with respect to building accommodation is again brought to the earnest attention of the university authorities. During the past four years, the total number in attendance has increased from 550 to 850 in a geometric progression. The cause is doubtless twofold, as indicated above, one the attraction to the excellence of the courses in this university, and the other the growing prospects of the engineering profession in Canada.

In view of these increases and their causes, it is obviously due the oncoming generation to provide for it adequate facilities in the provincial university if the excellence and efficiency is to be maintained.

It is well realised that buildings and equipment, bricks, mortar, machinery and apparatus do not make a university any more than do large numbers of students. The real foundation upon which the efficiency, success, and prestige of a university primarily rests is upon the quality, personality, and industry of its teaching staff, the quality of its students, and the interest and loyalty of its graduate body. In all of these the University of Toronto is fortunate and is to be congratulated.

Nevertheless, however excellent the staff may be, and however high the quality of the students may be, there comes a time when inadequate building accommodation and equipment may work a disadvantage. It is a poor economy, especially for a state-owned institution of learning, to lag behind in the provision of buildings when the country is demanding so much from the young generations for its progress. This is particularly so in applied science, which is so necessary in the country's development.

The faculty of applied science has no great cause for complaint for the manner in which, during the past ten years, it has been furnished with building accommodation and equipment with which to carry on its work. Within that time the new electrical building has been added, the university survey camp has been developed, the aerodynamics laboratory has been established, and now the next session will see the mining mill fully reconstructed and taken into use, so that it will have nearly four times as much floor space as formerly. In the latter case the very great interest of the Ontario Government has been evident by its generous co-operation toward providing this additional means of instruction for coming generations who will participate in the development of the mineral resources of the province.

There remain, however, two other directions in which it is essential that further building accommodation be provided. This is for the departments of mechanical and chemical engineering. They are now most seriously crowded, so much so that there is a danger of efficiency being affected. We must look to the future of ten years and beyond, and as for the immediate future, the conditions threaten to be critical, as the large numbers in the junior years in these departments pass on into senior years. The university authorities have for some time past been urged to meet this situation and it is hoped that appropriate action is in contemplation in the near future. In this respect, the accommodation committee of the faculty council has been labouring very hard for the past six months to prepare information and general plans to meet this situation for the immediate and remote future. The encouragement given by the Board of Governors with regard to assistance in the prosecution of the committee's work is much appreciated, and it is expected that a full report will be ready for presentation early in the coming session.

In order to visualise the growing requirements and their changing character with respect to numbers of students in attendance, the following table has been prepared. This shows enrolment in typical years, one of which was before the war, and four since, including the present. Apart from the total numbers, the interesting features of these which are shown both by years and departments, are the changes in enrolment in the different departments or branches of engineering. They disclose, for instance, that whereas in 1910 civil engineering was leading in numbers with over half the total, it was less than a fifth after the war, and now is only an eighth of the total. Electrical has greatly increased after the war and has fairly held its proportion. The same may be said of mechanical in the earlier years, but now it has the largest number, with a quarter of the total. Chemical has very rapidly increased, and has held third place for some years, with now nearly a quarter of the total. Mining has varied, but has in recent years been very considerably increased. Architecture has also been notably increasing the past few years.

ENROLMENT OF STUDENTS

Session	Department	First Year	Second Year	Third Year	Fourth Year	Total
1910–11	Civil Engineering	138	85	104	55	382
	Mining Engineering	28	14	19	16	77
	Mechanical Engineering	31	18	27	11	87
	Architecture	7	8	5	4	24
	Analytical Chemistry*	10	5	6	2	23
	Chemical Engineering	4	3	2	..	9
	Electrical Engineering	56	34	48	30	168
		274	167	211	118	770

1920–21	Civil Engineering	29	58	30	37	154
	Mining Engineering	13	25	16	12	66
	Mechanical Engineering	44	56	33	26	159
	Architecture	10	11	3	9	33
	Analytical Chemistry*	..	..	..	15	15
	Chemical Engineering	32	66	38	10	146
	Electrical Engineering	60	93	40	23	216
	Metallurgical Engineering	3	9	3	6	21
		191	318	163	138	810
1924–25	Civil Engineering	19	25	22	22	88
	Mining Engineering	13	7	6	8	34
	Mechanical Engineering	18	21	25	28	92
	Architecture	10	9	6	9	34
	Chemical Engineering	18	21	17	24	80
	Electrical Engineering	36	35	32	42	145
	Metallurgical Engineering	2	3	5	5	15
		116	121	113	138	488
1927–28	Civil Engineering	20	17	14	19	70
	Mining Engineering	30	17	8	10	65
	Mechanical Engineering	23	27	24	20	94
	Architecture	14	6	12	7	39
	Chemical Engineering	52	35	18	14	119
	Electrical Engineering	42	41	27	26	136
	Metallurgical Engineering	5	6	6	4	21
		186	149	109	100	544
1930–31	Civil Engineering	42	30	20	12	104
	Mining Engineering	27	20	24	16	87
	Mechanical Engineering	84	65	33	30	212
	Architecture	18	14	9	7	48
	Chemical Engineering	65	49	27	33	174
	Electrical Engineering	82	50	33	35	200
	Metallurgical Engineering	10	3	3	7	23
		328	231	149	140	848

*Discontinued in 1921 in this faculty.

NOTE—To the foregoing should be added those proceeding to post-graduate degrees which, for the past eight years, have varied between six and 12 yearly.

A report upon this session's work demands reference to the matter of employment of graduates. The present widespread depression and inactivity in the Dominion, whatever its effect in other directions, does not appear so far materially to have affected the engineering profession, as judged by demands for our graduates. For the past several years all our graduating classes have promptly been absorbed, practically wholly in Canada, and in the last two years there were many demands unfilled. The present graduating class of 140, I am glad to report, has already been nearly 90 per cent. absorbed, and these wholly in Canadian work. The greatest demands appear to be for civil, mechanical, and electrical; civil engineering graduates are fully absorbed. Doubtless this can partly be explained by the prosecution by governments and municipalities of employment programmes in which engineers are necessary. On the whole, however, it appears to indicate that the present depression is generally viewed as temporary by those who normally take engineers into employment. If this be a correct appreciation, the inference is that when normal conditions return there will be a demand for engineering graduates considerably in excess of the apparent supply.

In connection with the all-important work of research, as carried out in the School of Engineering Research, the members of the faculty have again been active and diligent throughout the past session. This is especially gratifying as they have had to carry on this work superimposed upon the regular instructional work, which, it is quite well understood, must take precedence.

The researches in this faculty are being especially directed toward the most practical and useful application of science to Canadian development and those which are undertaken are prosecuted in such a manner as to avoid, as far as possible, duplication of work done by provincial or dominion research agencies. Much of the work undertaken is such as naturally arises in the laboratories of the faculty through contacts of the members of the staff with outside professional and industrial organisations. Only a small fraction of the money provided through the university research funds is allocated to researches being done by post-graduate student research assistants who may be proceeding to advanced degrees.

The Annual Bulletin of the School of Engineering Research, now shortly to be published for this session, will be found to contain many articles and descriptions of researches, such as have heretofore brought gratifying attention to this publication. The total number of researches under way during the session has been nearly 30, and they are enumerated in a separate report.

(4) REPORT OF THE DEAN OF THE ONTARIO COLLEGE OF EDUCATION

(*Dr. Wm. Pakenham*)

The expansion in the attendance in the secondary schools of Ontario and the rapid growth of vocational schools have resulted in a growth in registration in the high school assistant's course from 80 in 1922 to 380 in 1931. This growth, accompanied as it was by the institution of the Library School and of additional courses in commercial subjects, physical education, art, and music, has made it extremely difficult to work efficiently in the present buildings. It is a great satisfaction to know that additional accommodation, to include a women's gymnasium, several lecture-rooms, a demonstration room, and a library, will be provided for the session of 1931-32.

Additions to the accommodation have been accompanied by additions and changes in the staff. Mr. R. F. S. Baird, B.A., a member of the staff of Bloor Street Collegiate Institute, Toronto, and a critic-teacher in the College of Education, has been appointed librarian in the model library to be installed in the University Schools. Mr. B. C. Diltz, M.A., who has been for several years an instructor in the University Schools and in the English department of the College of Education, has become a full-time instructor in the College of Education. Mr. J. L. Gill, B.A., of Westdale Technical School, Hamilton, has been appointed instructor in English and history in the University Schools.

The Carnegie Corporation has made a grant of $10,000 to the University to be used in the preparation of standardised Canadian school tests. Dr. Sandiford, with whose name the grant was connected, has been appointed director of research in the College of Education and will proceed at once with the preparation of the tests.

With the increase in the number of teachers-in-training, in the variety of courses, and with the offer of graduate courses in such cities as Hamilton, Ottawa and London, the demands upon the staff are becoming excessive. The need of an increase in the number of instructors is urgent.

(5) REPORT OF THE FACULTY OF HOUSEHOLD SCIENCE

(*Dr. C. C. Benson, Secretary*)

The registration in the Faculty of Household Science again shows an increase, with a total registration of 230, as compared with a total of 203 for the last session.

The pass students again greatly outnumber the honour students, and, as in previous years, more than half of our students are residents of Toronto. We have registered with us, however, a number of students who are completing work begun at some other university or college and this year we have had a good group of nine students, graduates of the courses in household science at Macdonald Institute. These students have, in general, done thoroughly satisfactory work with us, and enquiries, already made, indicate that we are likely to have a similar class again next year.

The more severe requirements for entrance and for the completion of each year have apparently given us a better grade of students, for, although the registration is larger, there are fewer failures and fewer transfers from the honour to the pass course than there were last year.

As a result of the changes in the work of the faculty of arts and the withdrawal for next session of the present first year, we have made plans to introduce a new course next session. This course will require three or four years of work after an honour matriculation, similar to that required by the faculty of arts, and will lead to the degree of bachelor of household science. The course of study, covered in three years, should give preparation for dietitians, but a fourth year of study will afford an opportunity for additional work in household science and in other subjects, which will enable graduates of this longer course to fit themselves for teaching as well as for dietetic work.

Graduates from this faculty are finding work in both these lines. Graduates from the honour course are holding posts similar to those held by the graduates from the household economics course of the faculty of arts and many of the graduates of the pass course are doing good work as dietitians. Our graduates are engaged in teaching in our high schools and collegiate institutes, and in dietetic work in hospitals and in various business institutions.

(6) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY

(Dr. C. D. Howe)

The business depression affected the Faculty of Forestry more seriously this year than last. We had the largest graduating class in our history and the most difficult time for them to find employment. However, thirteen of the eighteen members of the class have secured positions. For the past ten years, we have averaged to graduate ten men each year, so if we had had an average class as to numbers, its members undoubtedly would have all obtained positions in spite of stagnancy in the pulp and paper industry and the serious curtailment of expenditures in the Dominion Forest Service. Five of the graduates are employed by the pulp and paper industry, four of them by a single company, and six by the Provincial Forestry Branch. The latter organisation is employing about three-fourths of the undergraduates in summer work and with one exception, it is the only forestry organisation employing undergraduates this season.

The investigative work by the various members of the staff has been carried on as usual. Four parties under the direction of Professor White, acting for the Ontario Forestry Advisory Board, are studying the natural regeneration of spruce and white pine. Professor Dwight is continuing the growth and yield studies in the pulpwood forests of the north. Mr. Hosie has a party this summer going on with the investigation of the herbaceous flora beneath the forest as an index of the growth and yield capacity in the various sites.

(7) REPORT OF THE DEAN OF THE FACULTY OF MUSIC

(Dr. E. C. MacMillan)

During the session 1930-31, the number of students registered was 45. In the course leading to the degree of bachelor of music, 7 registered in the first year, 19 in the second year and 14 in the third year. Five candidates were registered in the course leading to the degree of doctor of music.

The following lectures were given by members of the faculty of music:

ERNEST MACMILLAN, Esq., B.A., Mus.Doc.:
January 5—"The Construction of Basses" (First and second years).
January 12—"Tudor Church Music" (All years).
January 19—"Harmonisation of Melodies" (First and second years).
January 26—"Tudor Secular Music" (All years).
February 2—"Contrapuntal Treatment of Hymn Tunes" (Third year).
February 16—"Elements of Fugal Construction" (Third year).

H. A. FRICKER, Esq., M.A., Mus.Doc.:
For students of all years—
January 9—"Form in Choral Music," Part I.
January 16—"Form in Choral Music," Part II.
January 23—"Orchestration."
January 30—Motet, Sing ye to the Lord (Bach).
The Beatitudes (Cesar Franck).

L. SMITH, Esq., Mus.Bac.:
February 6—"Analysis" (Second year).
February 9—"Style in Music" (All years).
February 13—"Analysis" (Second year).
February 20—"Free Counterpoint" (Second and third years).
February 23—"Style in Music" (All years).
February 27—"Free Counterpoint" (Second and third years).

It is a matter of regret that ill health has led Dr. F. A. Mouré to retire from the position of lecturer in the history of music, a position which he has so ably filled for the past twelve years. No appointment has yet been made to fill the vacancy. Dr. Mouré was unfortunately also prevented from completing his usual series of organ recitals this season; in his place a short series was given by a number of Toronto organists.

The sixth annual presentation of Bach's "St. Matthew Passion," in Convocation Hall on the evening of March 31st, attracted a large audience; the number of students attending was particularly gratifying. Circumstances have prevented the holding of the usual concert by the Conservatory Choir and Orchestra this year in Convocation Hall; the former body has, however, been active, having given "The Messiah" (with augmented chorus) in St. Paul's Church on January 12th and Arnold Bax's "St. Patrick's Breastplate" (for the first time in America) in Massey Hall on April 7th. The orchestra has also had an active season, having played twice in Massey Hall and having given also a series of radio broadcasts. Many other successful recitals have been given at the conservatory by members of the faculty and by students.

The Hart House Quartet gave a series of recitals for students in Convocation Hall, attracting large and enthusiastic audiences.

Mr. J. L. Richardson is continuing his Sunday afternoon carillon recitals from the Memorial Tower during the summer months, giving great enjoyment to the many who find themselves in the neighborhood of the university grounds.

There has been no abatement of interest among the student body in the Sunday evening and Friday afternoon recitals in Hart House. We owe a deep debt of gratitude to the musicians who so generously contribute their services. The songsters, held under the direction of Mr. J. Campbell McInnes and others, have also maintained their usual popularity.

The number of candidates entering for the examinations of the Toronto Conservatory of Music for the present season has been 19,898, as compared with 20,706 for the season 1929-30. Entries for the year were distributed as follows: Piano, 11,221; Violin, 616; Singing, 453; Sight Singing, 63; Organ, 33; Viola, 2; Violoncello, 6; Elocution, 40; Theory (rudiments, history, harmony, counterpoint, form), 7,464.

(8) REPORT OF THE DEAN OF THE SCHOOL OF GRADUATE STUDIES

(Professor J. Cunningham McLennan)

During the session 1930-1931, the number of students registered in the School of Graduate Studies was 543, an increase of 69 over the preceding session. Of this number 402 were residents of the Province of Ontario, 217 being from Toronto, 2 from Brant, 5 from Bruce, 15 from Carlton, 4 from Dufferin, 2 from Durham, 4 from Elgin, 6 from Essex, 2 from Grenville, 4 from Grey, 5 from Halton, 4 from Hastings, 3 from Huron, 1 from Kent, 3 from Lambton, 4 from Lanark, 2 from Leeds, 8 from Lincoln, 13 from Middlesex, 3 from Muskoka, 5 from Nipissing, 4 from Norfolk, 5 from Northumberland, 4 from Ontario, 4 from Oxford, 2 from Peel, 3 from Perth, 1 from Prince Edward, 2 from Renfrew, 1 from Russell, 4 from Simcoe, 1 from Stormont, 1 from Victoria, 7 from Waterloo, 1 from Welland, 22 from Wellington, 13 from Wentworth, 14 from York, 1 from Kingston. Of the remaining 141 registered students, 18 were residents of the Province of Nova Scotia, 11 of New Brunswick, 2 of Prince Edward Island, 6 of Quebec, 11 of Manitoba, 18 of Saskatchewan, 10 of Alberta, 16 of British Columbia, 25 of the United States and 24 of Great Britain, the overseas dominions and colonies and foreign countries. The registration of students from outside Canada was 50 per cent. greater than it was in 1930-1931.

The degrees sought are shown in the following table:

	Men	Women	Total
Candidates for the degree of Ph.D.	87	20	107
" " " " " M.A.	124	50	174
" " " " " M.S.	4	..	4
" " " " " M.A. Sc.	10	..	10
" " " " " M. Arch.	1	..	1
" " " " " Chem.E.	1	..	1
" " " " " C.E.	1	..	1
" " " " " E.E.	2	..	2
" " " " " Mech. E.	2	..	2
" " " " " D.Paed.	50	10	60
" " " " " M.S.A.	19	1	20
" " " " " M.Sc. (Dent.)	3	..	3

In addition 94 men and 64 women were registered as graduate students without being definitely candidates for a degree.

The distribution of the students according to their major study was as follows:—Anthropology, 3; architecture, 1; biochemistry, 20; biology, 41; chemistry, 22; chemical engineering, 12; civil engineering, 1; classics, 24; dentistry, 5; educational theory, 1; electrical engineering, 3; English, 39; epidemiology and biometrics, 1; food chemistry, 3; forestry, 2; geology, 18; German, 4; history, 18; household science, 2; hygiene, 2; mathematics, 12; mechanical engineering, 2; mineralogy, 1; mining engineering, 1; pathology and bacteriology, 5; pathological chemistry, 2; pedagogy, 60; philosophy, 63; physics, 31; physiology, 6; physiological hygiene, 2; political science, 19; law, 16; psychology, 37; romance languages, 22; semitics, 7; surgery, 4. During the year 17 students fulfilled the requirements for the degree of Ph.D.; 86 those of the

degree of M.A.; 1 those of the degree of M.S.; 8 those of the degree of M.A.Sc.; 1 those of the degree of M. Arch.; 1 those of the degree of C.E.; 1 those of the degree of E.E.; 2 those of the degree of Mech. E.; 4 those of the degree of D.Paed.; 5 those of the degree of M.S.A.

Candidates who received the degree of Ph.D., together with the title of their theses, were:—

Miss E. J. Allin,—The hyperfine structure of spectral lines.
Mother M. D. Barry,—The pilgrimage of the soul.
A. S. Cook,—The quantitative determination of trimethylamine, oxide and its occurrence in marine animals.
D. R. Derry,—The genetic relationships of pegmatites, aplites and tin veins.
A. M. I. A. W. Durnford,—A study of Zeeman effects.
Miss D. F. Forward,—The effects of prolonged darkness upon infection type and development in stem rust of wheat.
G. W. Jeffers,—The life history of the Capelin (Mallotus Villosus) (O. F. Muller).
C. A. King,—Arthur Hugh Clough: A critical study.
L. W. Koch,—Spur blight of raspberries in Ontario caused by didymella applanta.
J. S. Lawson,—Art as a stimulus to the religious consciousness.
E. J. Lees,—Geology of the Laberge area, Yukon.
A. C. Pegis,—The problem of the soul in the thirteenth century.
H. A. Proctor,—The changes in muscle which accompany physical training.
Miss C. E. Rice,—Studies of dissociation in cultures of the tubercle bacillus.
J. D. Smart,—The personal element in Isaiah 40-66.
W. E. Steenburgh,—Laboratory and field observations on *Trichogramma Minutum* Riley, with special reference to the oriental fruit moth (Laspeyresia molesta Busck) in Ontario.
Miss C. M. Thompson,—A study in Aristotle's doctrine of dynamis and energeia.

The open fellowships provided for students in the School of Graduate Studies for the session 1931-32, by the generosity of the Canadian Pacific Railway, Imperial Oil Limited, the Robert Simpson Company and Sir Joseph Flavelle, together with a fellowship in memory of the late Sir Edward Kemp, have been awarded as follows, the universities from which the recipients graduated and the departments in which they will pursue their studies being indicated:

P. H. Wright, B.A., Saskatchewan, department of English.
D. Owens, B.A., Manitoba, department of philosophy.
Miss M. J. Fisher, B.A., British Columbia, department of mathematics.
Miss A. E. McKay, B.A., Dalhousie, department of mathematics.
J. M. Rowat, B.A. Saskatchewan, department of mathematics.
S. D. Clark, B.A. Saskatchewan, department of history.
A. N. Langford, B.A. Queen's, department of botany.
G. E. Woolliams, B.A. British Columbia, department of botany.

Appointments to other fellowships open to graduate students have been made as follows:

The Alexander Mackenzie fellowships: C. C. Calder, B.A. Western Ontario, department of political science; D. C. Masters, M.A. (Tor.), department of history.

The Ellen Mickle fellowship: M. H. Book, M.D.

The University of Toronto War Memorial fellowship: Miss M. R. Butler, M.Sc. Dalhousie.

The Education fellowship: Miss D. McCann, B.A. Western.

Ontario Government fellowships: W. M. Gammon, B.S.A. Agr.

During the year the administration of the regulations covering the degree of doctor of music was transferred to the School of Graduate Studies and placed in charge of a sub-committee composed of the two representatives of the faculty of music on the executive committee of the school.

For some years a number of those engaged in graduate instruction and in research in the University of Toronto have openly maintained that our inducements to graduate students, especially those of the better type, were woefully inadequate, especially in regard to scholarships and fellowships, library facilities and specific provision for research work. In order that this criticism might be put in a concrete form suitable for presentation to those in a position to remedy such defects, questionnaires dealing with the three matters just referred to were issued with the approval of the Executive Committee to the members of the School of Graduate Studies. The replies received indicated that in the aggregate over 100 scholarships and fellowships in addition to those provided at the present time could be used profitably in the Graduate School each year. A few members of the staff expressed the view that these awards should be tenable by the same student for one year only, but of the remaining members, approximately one-half were in favour of a two-year tenure of the awards and one-half in favour of a three-year tenure. After an open discussion of the subject by the members of the School in Council it was decided that an additional $50,000 would be a reasonable annual sum that should be provided to meet the needs of the University at the present time in the matter of graduate scholarships and fellowships, tenable in our University and in the matter of special fellowships available for graduates of the University of Toronto to enable them to continue their research work abroad.

The replies received in answer to the questionnaire on library requirements showed that the departments were practically unanimous in their requests for:—

(1) Special non-recurrent grants to make up for books and periodicals not now in our possession.

(2) An increased annual grant for the more extensive purchase of new books, for new subscriptions to periodicals not now subscribed for, and for duplicate subscriptions to a few periodicals of particularly extensive use.

(3) Considerable increase in the messenger service available for immediate transfer of books asked for from the main library to the various departments.

(4) Increased accommodation for the library in respect of stack and reading rooms.

(5) The development of a definite policy regarding departmental libraries and their relation to the main library.

With reference to the first three requests nothing further need be said because the answers to the questionnaire are on record and show very definitely the needs of each department.

With regard to increased accommodation in the library, it is well known that the Librarian and the Senate's Library Committee have for some time been urging upon the authorities the necessity of a new library building or alternatively of additions to and modifications in the existing building.

Whatever is done with regard to library accommodation, the question of departmental libraries is a pressing one. In regard to this there does not seem to be any marked unanimity in the various departments of the University. As a general rule the language and literary departments are satisfied with the use of a centralised library which, many of them have pointed out, is really the equivalent of a laboratory for their work. On the other hand, the scientific departments and the different faculties, such as engineering and medicine, on the whole seem to favour the continuance of departmental libraries. It is pointed out, however, in almost every case that these departmental libraries should contain duplicates of the books and periodicals in the main library that are in most constant demand by students and staff.

In the questionnaire on assisted researches, the members of the Council of the School of Graduate Studies were invited to indicate in as definite a manner as possible researches not already provided for and which they desired and would be prepared to undertake if they received the requisite financial assistance for this purpose.

The replies received may be divided into two categories, namely, those received (1) from language departments (classics, Germanics, romance languages, English), history, political science, law and education, and (2) from scientific departments, anthropology, biology, botany, chemistry, food chemistry, geology, applied mathematics, medicine, pathology, pathological chemistry, pharmacology, physics, physiology, anatomy, dentistry, engineering departments.

As to the language departments, several have asked that funds be provided to enable a few of their graduate students and junior members of staff to be sent each year to prosecute some special kind of research in Europe. In several instances members of the senior staff have asked as well for grants to enable them to go overseas for the same purpose during summer vacations. At present this policy is being followed by the university in a few departments, apparently with success, and the requests now being put forward would seem to warrant the adoption of the same policy generally.

With regard to the scientific departments the requests put forward were varied. These were in some cases for increased building accommodation which would mean considerable capital expenditure. Such requests in particular came from the departments of chemistry, physics and applied mathematics.

In such departments as physics, chemistry and structural engineering, assistance was requested for the prosecution of specific experimental work, chiefly in the nature of research work.

In such departments as anthropology, biology, botany and geology, there were specific requests that investigations involving a considerable amount of field-work, that could be carried out by graduate students, should be undertaken. In these departments also requests were made for special types of technicians to help with the care of materials gathered in the field.

In the department of physics a request was presented for an annual grant to enable the department to secure for several months each session the services of one or more of the most distinguished modern mathematical physicists in order that courses of lectures on the most recent advances made by them or by others in theoretical physics might be given.

The requests put forward by the staff for assistance in research would appear to be well worthy of support. It is estimated that if adequate financial provision were made for the purpose the special grant now made for research would be required at the very least to be doubled.

(9) REPORT OF THE DEAN OF THE FACULTY OF DENTISTRY

(*Dr. Wallace Seccombe*)

Registration in first year dentistry has increased from 23 in session 1928-29 to 37 in session 1930-31. The total registration has remained about the same during this period, due to the graduation each year of the larger classes. Similar conditions to our own are reflected in both Great Britain and United States. The Carnegie Corporation reports a gradual decrease in the attendance of students in United States dental schools during the past eight years (from 13,099 in 1922-23 to 7,679 in 1929-30), but the Foundation reports an increase in the total dental student registration in United States of 318 for the present session. The University Grants' Commission in Great Britain states that in 1928-29 there were 630 men dental students at the various universities, while five years earlier,

in 1923-24, the number was 1,018. It would appear that the tide has definitely turned and we may now look for a gradual increase in the number of dental students.

Fifteen graduates registered for advanced work, some for part time and others for whole time service, and of this number, five were awarded the degree of bachelor of science in dentistry.

Twenty-four dental nurses were registered, three of whom withdrew from the course during the session. All of those remaining successfully completed the work of the year.

Forty-six extramural lectures and clinics were given before county or local dental societies in the following centres during the session: Lindsay, Sarnia, Kitchener, London, Ottawa, St. Thomas, Orillia, Goderich, Galt, Kingston, Renfrew, Guelph, Pembroke, Niagara Falls, Owen Sound, Chatham, Walkerton, and Kincardine, and in Northern Ontario at Cobalt, Timmins, North Bay, Sudbury, Sault Ste. Marie and Port Arthur.

The Western Canada lecture-clinics are being given by Dr. J. H. Johnson and will include the following centres: Winnipeg, Brandon, Regina, Weyburn, Swift Current, Lethbridge, Calgary, Victoria, Vancouver, Edmonton, North Battleford, Prince Albert, Saskatoon, Yorkton, Moose Jaw and Fort Frances.

The commission making a survey of the dental curriculum, appointed by the American Association of Dental Schools and supported by the Carnegie Corporation, is now actively at work, L. E. Blauch, Ph.D., giving whole time as executive-secretary, and Professor Reeves of the University of Chicago and Professor Charters of Ohio State University acting as technical advisers. As chairman of this commission it has been necessary for me to attend the meetings of the committee during the year at various centres and while this has entailed considerable time, I have found the study of great value in developing the course in this faculty. The commission hopes to be ready to report within a period of two years. The general recognition of the important part played by dental infection in ill-health of the community is occasioning increased interest in dental education and a recognition of the importance of the fundamental sciences in dentistry.

Early in the year we lost one of the members of our staff who had been with us for twenty years. I refer to the late Dr. Joseph S. Graham, professor of histology, bacteriology and pathology. Dr. Graham had taken a great interest in the development of this department, and his charming personality had endeared him to staff and students alike.

Dr. Switzer has been ill during the year but is now restored to health and is back at work in the faculty.

It is with regret that we report the resignation of Dr. Cummer, who is completing twenty-five years of service as a member of the faculty. He goes to his new and larger work as dean of the faculty of dentistry of the University of Detroit with the good wishes of all.

The death of Professor Graham and the resignation of Professor Cummer have occasioned various readjustments within the faculty and some new appointments. These will take effect for the ensuing session.

(10) REPORT OF THE DIRECTOR OF THE SCHOOL OF HYGIENE

(J. G. FitzGerald, M.D., LL.D., Director)

This is the fourth annual report of work of the School of Hygiene for the year ending June 30, 1931. During the present academic period it has become increasingly evident that an addition to the hygiene building is necessary to provide space for the expanding work in both the School of Hygiene and in the

Connaught Laboratories. As a result of a survey made recently by officers of the Rockefeller Foundation and after consultation with the Provincial Government, plans were evolved as a result of which the Board of Governors have received very substantial additional financial support for the School of Hygiene. The Rockefeller Foundation has contributed a further sum of $600,000 to supplement the present endowment of $250,000, the income on which will be available for the maintenance of the existing departments of epidemiology and biometrics, physiological hygiene and a new sub-department of chemistry in relation to hygiene. Furthermore, the Government of the Province of Ontario has provided, in the estimates of the Department of Health, Ontario, a grant of $14,250 a year, which amount will also be devoted to the same purpose. A portion of the income from the Rockefeller Foundation endowment is to be utilised to provide for administration and to make possible expansion of the library of the Connaught Laboratories which is available for the use of students, graduate and undergraduate, in the School of Hygiene. Finally, the Connaught Laboratories is to make available a sum of $300,000 to $350,000 for the extension of the hygiene building which will greatly increase the total space available for teaching and research. This sum is to be taken from the accumulated surplus in the Connaught Laboratories fund.

The School of Hygiene, then, beginning with the session 1932-33, will consist of the department of hygiene and preventive medicine (which continues also to be a department of the faculty of medicine), of epidemiology and biometrics, of physiological hygiene and of public health nursing. This latter department is, as has been previously indicated, autonomous from the administrative standpoint.

Promotions and appointments:

In the department of epidemiology and biometrics several sessional appointments have been made. These include four laboratory assistants in vital statistics and it is anticipated that a research assistant in the same subject also will be recommended for appointment.

In the department of physiological hygiene a research assistant, as well as two new technical assistants, have been recommended for appointment.

In hygiene and preventive medicine the appointment of additional demonstrators has been recommended on account of the increase in the number of graduate and undergraduate students.

The registration in the course leading to the diploma in public health for 1930-31 surpassed even that of last year, numbering sixteen. This is the largest class to be enrolled since the course was established. Of the students registered in the above course six were from the Province of Quebec, three from British Columbia, two from Alberta, one from Manitoba, one from Prince Edward Island and the remainder from Ontario. Thirteen of these students completed the course and received the diploma in public health.

Laboratory courses in epidemiology, bacteriology, serology, public health chemistry, vital statistics, physiological hygiene and parasitology were provided for these graduate students.

Laboratory and other courses for students in public health nursing, in the course for hospital administrators and instructors in schools of nursing were also given by this department. Field-work and laboratory courses, as well as the usual didactic lectures for students in the fifth year of the faculty of medicine were carried on as in previous years. The field course was given in May and June and in September. Again it is desired to emphasise the obligation which the department is under to the Department of Health, Ontario, and to the Department of Public Health, Toronto, for their assistance and collaboration in the provision of facilities for this work. Many observational visits are thus made possible and to a large number of persons on the staffs of the above departments thanks are due for the efforts which they have made to introduce the undergraduate students, in a practical way, to preventive medicine and public health. Many other

agencies and individuals have also cooperated in providing facilities for practical instruction. To them the department is deeply indebted.

Graduate students registered in the department and in the School of Graduate Studies proceeding to the degrees of Ph.D. or M.A., numbered five. A course of lectures for students in third year arts (household science) as well as one for students in social science was also provided during the academic session.

REGISTRATION IN THE SCHOOL OF HYGIENE

	1927–28	1928–29	1929–30	1930–31
A. Graduates				
Candidates for the diploma in public health	7	11	13	16
Candidates for the degree of M.A.	2	2	2	1
Candidates for the degree of Ph.D.	3	4	5	4
Occasional students	3	1	..	..
B. Candidates for the diploma in public health nursing	53	34	41	49
C. Undergraduates				
Faculty of medicine, 5th year	109	112	124	154
Faculty of household science, 3rd year	63	65	35	65
Department of social science	28	36	..	16
Department of university extension	58	82	45	43

As in previous years, the research activities of members of the teaching staff in the departments of the School of Hygiene are detailed in the report of the Director of the Connaught Laboratories.

During the year many visitors from other countries have come to observe the work in the School of Hygiene and in the Connaught Laboratories for varying periods of time. They have come from the following countries:—Belgium, China, Czechoslovakia, England, France, Germany, Greece, Ireland, Italy, Japan, Mexico, Rumania, Scotland, Siam, South Africa, Switzerland, Turkey, United States, Venezuela, West Africa.

During the present year the director of the School of Hygiene has been appointed a member of the Health Committee of the League of Nations and a member of the Board of Scientific Directors of the International Health Division of the Rockefeller Foundation.

(11) REPORT OF THE LIBRARIAN

(W. S. Wallace, Esq., M.A.)

I beg to submit the following report on the work of the university library for the year ending June 30, 1931.

The number of volumes added to the library during the year has been 10,570, and the number of pamphlets 4,350, making the total number of volumes in the library 263,056, and the total number of pamphlets 94,626.

The statistics of the use of the library by undergraduates in comparison with previous years are as follows:

	1921–22	1926–27	1929–30	1930–31
Day books	41,928	106,485	144,925	145,041
Night books	18,998	39,779	59,552	66,191
Week books	4,782	13,104	24,133	20,527
Totals	65,718	159,278	228,610	231,759

These figures are exclusive of the books taken for consultation from the reference shelves, of which over 19,000 have been replaced on the shelves during the year by the assistants; nor do they include 37,388 books circulated by the professors' and graduates' register, as against 33,088 circulated last year.

The conditions under which the work of the library staff has been carried on during the past year have been increasingly difficult. Combined with the increase in circulation, the library staff have had to face an increasing congestion and disorganisation of books in the stack. It is now, in several sections of the library, impossible to put away books in their proper places; and the difficulty of keeping up a rapid and efficient delivery of books to the public has been greatly increased. I was decidedly apprehensive that there would be this year complaints about the service which the library renders its readers; and if no complaints have come to my attention this is wholly due to the effective manner in which the members of the circulating department of the library have this year carried on their work. It is most urgent that there should be no further delay in taking up the question of the extension of the library building, and especially the provision of more stack room.

The congestion in the stack is, however, not the only reason why the addition to the library building is needed. The present building is nothing more than a makeshift reconstruction of the original college library building erected in 1892; and in many respects the University of Toronto library is still comparable with the college libraries of the United States rather than with the large university libraries. The university, in fact, has outgrown the library. This is seen most clearly perhaps in the demands on the library now being made by the School of Graduate Studies. The dean of the School of Graduate Studies addressed, during the past year, a questionnaire to all those teaching in the School with regard to the adequacy of the university library resources and facilities, and the answers to this questionnaire, which have been forwarded in an abbreviated form to the library committee of the Senate, reveal a widespread feeling that in many departments the university library is gravely inadequate for the purposes of the School of Graduate Studies. By direction of the library committee, I am addressing to the heads of the teaching departments in the university a request for the specific sums which, it is estimated, will have to be spent on building up the resources of the library, before the library is on a satisfactory footing for research and graduate work. I venture to think that the total of these sums will be staggering. But there is little use in asking for money for books when there is no place to put them. Only when the university has a library building constructed on a more generous scale, will the library be able to fill its proper function in relation to the School of Graduate Studies.

I would be remiss, finally, if I did not bring to your attention the loyal, and I believe efficient, service which the members of the library staff have rendered during the past year, and to call your attention to the low scale of salaries which still prevails in the university library. Library assistants require an exceptional equipment. They must have a combination of scholarly knowledge and executive capacity which is required in few other positions. A cataloguer, for instance, must have an almost encyclopaedic acquaintance with most of the subjects taught in the university, besides a knowledge of what is sometimes termed "library science"; and yet she cannot hope, under present conditions, to obtain a salary equivalent to that of the best-paid public school teachers.

(12) REPORT ON RESEARCH

Anatomy, under direction of Dr. J. C. B. Grant

The following investigations have been or are being undertaken by members of the department: Dr. Watt is pursuing his studies on calcification and is collaborating with Dr. Cates and Dr. George in investigating the "presence of erosion of articular cartilage." Dr. Linell, the neurological section and the Richardson fellow—(1) The post-natal development of oligodendroglia in the white rat (with Dr. Mary I. Tom). (2) The post-natal progress of myelination

in the central nervous system of the white rat (with Dr. Mary I. Tom and Professors Alan Skinner and Bruce Macallum, University of Western Ontario. (3) Weigert-stained sections of human brain-stem and spinal cord (Dr. Mary I. Tom and Dr. B. L. Guyatt. (4) The history of the human corpus striatum (Mr. Nathan Roth, Richardson research fellow). (5) Auerbach's plexus in cases of vitamin deficiency in the white rat (Dr. Dudley A. Irwin and Dr. John Ross, Hospital for Sick Children). (6) An investigation of the recurrent laryngeal nerves from a case of aneurysms of the arch of the aorta and innominate arteries (with Dr. H. F. Mowat). (7) Histological investigation of a case of ruptured aneurysms of the anterior cerebral artery (with Dr. J. A. Hannah). (8) The histology of two cases of brain tumour (with Dr. I. H. Erb, Hospital for Sick Children). (9) A case of cerebral softening. Histological investigation (with Dr. Kenneth G. McKenzie). (10) Histological investigation of a case of frontal lobectomy (with Dr. Kenneth G. McKenzie). (11) A case of spinal meningitis (with Dr. I. H. Erb and Dr. Kenneth G. McKenzie). (12) Two cases of peripheral nerve tumours (with Dr. H. H. Hyland). (13) A case showing early degenerative changes in the posterior columns of the spinal cord (with Dr. George Laughlen, St. Joseph's Hospital). Dr. H. A. Cates is still collecting elaborate data on the angle of pelvic inlet and on the position of the line of gravity. It will in all likelihood be another year before this work is completed. In this he is collaborating with the department of gynaecology. Dr. D. Irwin—Auerbach's plexus—to be submitted for publication in the American Journal of Anatomy. Mr. H. LeMesurier, of the histology section, has made a reconstruction of the anal glands. Dr. J. C. B. Grant is investigating the anthropometry of the Cree and Cree Breed Indians.

Astronomy, under direction of Professor C. A. Chant

During the year the occultations of all the stars visible from Toronto have been computed and published in the Journal of the Royal Society of Canada. Four occultations were observed.

Tests of the relative amount of sky fog as between the proposed observatory site and points farther north have been carried out.

A new form of sensitometer, to be used in researches in photographic photometry, has been designed and almost completed.

Mrs. Krotkov's time has been largely devoted to the completion of a stellar card catalogue of radial velocities and of parallaxes, which will be indispensable in the new observatory. Mrs. Krotkov has also completed the computation of occultations for 1932.

Biochemistry, under direction of Professor H. Wasteneys

The researches in this report include the work of the staff and also studies conducted under the direction of the staff in partial requirement for academic degrees.

Directed by Professor Wasteneys

Mr. B. F. Crocker is investigating the biochemical significance of the trisaccharide which results from the action of tissue glycogenases on glycogen as discovered two years ago by Dr. A. D. Barbour.

Mr. J. Campbell is making an intensive study of autolytic enzymes with a view to attempting an extension of our researches on protein synthesis.

Miss F. I. Hargreaves with Dr. A. A. Fletcher of the department of medicine have been engaged in a study of the growth and colon condition in rats on diets which, while variously deficient in vitamin B1, contain also different proportions of carbohydrate. Miss F. I. Hargreaves is also investigating a suggestion that iron is a factor in the prevention of pellagra,

Dr. E. J. Maltby, in collaboratoin with the department of medicine, has continued his study of human gastric digestion in normal and abnormal condi-

tions, and he has completed his investigation of the extent of protein digestion in a depancreatised dog. The results of these researches have been submitted for publication.

Dr. C. W. MacGregor, in collaboration with the department of oto-laryngology, and Miss M. Riggs of this department, is investigating the possibility of hormones in tonsilar tissue.

Miss M. Butler has investigated the polysaccharides and proteins of Chondrus crispus.

Directed by Professor H. D. Kay

Professor H. D. Kay has continued his work on plasma phosphatase in bone disease and has published some of his findings. He has also devised and published an enzymic method for distinguishing between α and β glycerophosphate.

Mr. H. D. Branion and Dr. Kay and with Drs. Taylor and Weld of the department of physiology have investigated the connection between parathyroid function and irradiated ergosterol. A paper embodying their results is in press.

Mr. H. D. Branion and Dr. Kay with Dr. Guyatt of the department of anatomy have conducted a research on experimental rickets in rats where the disease has been produced by inclusion of beryllium and magnesium in the diet of the animals.

Mr. H. D. Branion and Miss M. Riggs have determined that the oil obtained from the testes of sturgeon does not contain appreciable quantities of vitamin D.

Mr. Branion has investigated the relation of sex to resistance to irradiated ergosterol poisoning in rats.

Mr. Branion and Messrs. Richardson and Graham with Dr. Taylor of the department of physiology are investigating the general problem of vital staining of bones by a variety of dyes.

Mr. R. G. Emslie is studying the role of three carbon atom compounds in avian carbohydrate metabolism.

Mr. H. D. Jenner has continued work in conjunction with H. D. Kay on tissue phosphatases, and in particular the place of Mg in the phosphatase system. A paper on this subject has been submitted for publication.

Mr. T. H. Jukes has begun an investigation of the biological and chemical properties of the proteins of the egg-yolk. He has devoted some time to the purification of these proteins (livetin and vitellin) and has carried out a series of experiments on the relationship of livetin to the blood serum proteins of the fowl with promising results. A thorough review of the literature on egg-yolk proteins has been made.

Mr. H. W. Lemon is working on the synthesis and breakdown of the ethereal sulphates of the tissues. He has given critical attention to the known methods for the determination of sulphate and of phenol in very small quantities and a suitable technique for sulphate has now been elaborated.

Miss A. Mackenzie is engaged in a chemical and histological examination of teeth of animals suffering from nutritional disturbances.

Mr. G. A. McVicar has recently begun an investigation of the adenine nucleotide derived from muscle tissue.

Directed by Professor A. M. Wynne

Professor A. M. Wynne is investigating

(*a*) The mechanism of the inhibition of the growth and metabolic activity of bacteria by acids.

(*b*) Some effects of phosphates, cyanides and iodides on the intermediate metabolism of Clostridium acetobutylicum.

(*c*) The separation of the pigment present in the spores of Aspergillus niger and a study of some of its properties.

Mr. W. W. Johnston (holding a studentship of the National Research Council) is studying the effects of certain amino acids and salts on the growth and metabolism of Clostridium acetobutylicum.

Mr. A. Matenko has conducted studies on

(*a*) Isolation of propionic acid bacteria and study of their metabolism.

(*b*) The fermentation of cellulose.

Mr. G. A. Grant has attempted an investigation of the possible formation of hexose-phosphates by galactose-fermenting yeasts in the presence of galactose and inorganic phosphates.

Miss M. Butler has studied the amylase of Clostridium acetobutylicum.

Mr. L. B. Pett has commenced an investigation of the fermentation of hexose-phosphates by propionic acid and butyric acid bacteria.

Biology, under direction of Professor B. A. Bensley

The following studies were carried on in the laboratories of the University, or conducted by members of the staff in the Ontario Agricultural College, in the Royal Ontario Museum of Zoology, Marine Biological Stations, and elsewhere.

Invertebrate Zoology, Entomology: Professor E. M. Walker, morphology of primitive insect head. Supervision of L. C. Marston, comparative morphology of the insect labium; F. P. Ide, ecology of trout stream mayflies; insect distribution in trout streams (with Mr. W. E. Ricker); W. E. Steenburgh, life-history of *Trichogramma minutum*, a parasite of the Oriental fruit moth; H. G. James, taxonomy of Ontario *Collembola*; Miss A. Alley, life-history of a sporozoan parasite of the herring; K. D. Roeder, head transplantation in insects.

Miss N. H. Ford, life-history studies on *Grylloblatta*, temperature limits of various *Orthoptera*.

Marine Biology: Professor A. G. Huntsman. Supervision of Mr. A. A. Blair, life-history studies on the Atlantic salmon; Miss M. H. Campbell, life-history of *Calanus* and *Euchaeta*; Miss M. V. Davidson, diatoms of Hudson bay; Mr. G. W. Jeffers, life-history of *Mallotus villosus*; Miss V. Z. Lucas, life-history of *Squalus sucklii*; Mr. E. P. Mathews, structural characteristics of *Modiola modiolus*; Mr. C. L. Newcombe, ecology of *Mya arenaria*; Mr. W. Templeman, local and seasonal characteristics of the lobster, *Homarus americanus*; Mr. G. C. Whitely, the cod, *Gadus callarias*, in northern Newfoundland and Labrador; Mr. G. V. Wilby, life-history of the ling-cod, *Ophiodon elongatus*.

Ichthyology: Professor J. R. Dymond, ecology and taxonomy of Lake Nipissing fishes, coregonine fishes of Hudson Bay. Supervision of C. McC. Mottley, taxonomy of Kamloops trout; Miss E. Spaulding, Ontario *Cyprinidae*; S. Brennan, osteology of *Leucicthys*.

Embryology: Professor A. F. Coventry, studies on the placentation of rodents. Supervision of Miss K. K. Holman, early development of the lake whitefish, *Coregonus clupeaformis*; A. L. Tester, developmental stages in the black bass.

Experimental Biology and Genetics: Professor J. W. MacArthur, chromosomes and linkage groups in the tomato, sex-linked and autosomal relations in fowl crosses; in collaboration with Professor Baillie, increased growth rate in hybrids of domestic fowl; with Dr. E. McCullough, inherited distal aphalangy in a human family; with Miss I. Rendall, inheritance in ten cases of disharmonic eye-colour in a human family. Supervision of Mr. A. R. Emslie, causes of hybrid vigour in domestic fowl; W. R. Graham, statistical analysis of body weight and egg weight in domestic fowl; L. Snyder, mendelian analysis of high and low hatching lines; P. F. Joyce, herd book studies of milk production in highly improved lines of cattle.

Mammalian Anatomy: Professor W. H. T. Baillie, studies in mammalian musculature; origin of the mammalian coronary arteries. Supervision of Mr. D. M. Allan, comparative studies on jaw musculature; Dr. J. H. Beasley, abdominal musculature in the chimpanzee and other mammals.

Comparative Neurology: Professor E. H. Craigie, vascularity of the hippocampal cortex and of fourteen regions of the spinal cord in the albino rat and wild Norway rat; technical preparation of material for study of the brain vascularity in domestic fowl; studies on the corpus striatum and cerebral cortex of the humming bird; development of the cerebral hemispheres in the chick; in collaboration with Professor V. E. Henderson, studies on the location of the respiratory centre. Supervision of Mr. C. G. Smith, volume of the neocortex and olfactory bulbs at different stages of the life-history.

Limnobiology: Professor W. J. Harkness, developmental studies on the sturgeon; laboratory and field arrangements for the Ontario Fisheries Research Laboratory, bibliography of original literature on Canadian hydrobiology. Supervision of Mr. W. E. Ricker, ecology of Ontario trout streams; J. P. Oughton, bottom organisms of Lake Nipissing; A. L. Tester, factors involved in spawning and development of black bass; E. S. Pentland, natural distribution and limiting factors of the food organism, *Gammarus*; A. M. Fallis, higher aquatic plants and plankton distribution in Lake Nipissing; Miss M. W. Cronk, bottom organisms of Shakespeare Island, Lake Nipigon; Miss E. G. Spaulding, distribution of Ontario minnows; Mr. M. Smith, pond and fertilisation experiments at St. Andrews, N.B. (Biological Board of Canada). Nine papers relating to freshwater biology were published during the year and eleven others are in progress.

Taxonomy and Distribution: In addition to various studies otherwise classified above, the following relate more especially to the Royal Ontario Museum of Zoology. Professor A. F. Coventry, *Amphibia* and *Reptilia* of the Timagami district; Mr. L. L. Snyder, the clay-coloured sparrow at Hawkestone, Ont.; paired ovaries in hawks, with Mr. Baillie, increase and status of the starling; with Mr. Logier, faunal investigation of Long Point; Mr. E. B. Logier, melanism in *Thamnophis*; Mr. T. B. Kurata, taxonomy of Ontario *Arachnida*.

Botany, under direction of Professor R. B. Thomson

I. PHANEROGAMIC BOTANY, GENETICS AND PLANT BREEDING

(Under direction of Professor R. B. Thomson)

A. *Anatomy and Experimental Morphology*

Allin, A. E.—Tangential pitting in the wood of fossil and living vascular plants.

Bannan, M. W.—A study of medullary rays in the lower seed plants.

Dickson, G. H.—Phases of sterility in the apple.

Hart, N. C.—The origin of resin canals in the wood of the pines.

LaRush, Mrs. F.—Studies on pollen grains in connection with hay fever.

Taylor, T. M. C.—The sporeling organisation and the cladorhize development of the adult plant in *Equisetum arvense* L.

Thomson, R. B.—The organisation of the lower vascular plants.

Thomson, R. B. and Allin, A. E.—Devonian plants from Gaspé peninsula.

Thomson, R. B., Sifton, H. B., and Bannan, M. W.—Wound reactions of *Sequoia*, *Abies*, *Larix*, and *Pinus*. The determination of the season of maximum response to wounding. The stimulation of resin production by chemical means.

Wright, Miss J. G.—In progress: an investigation of the nature of the pit-closing membrane in the wood of the Pinaceae.

B. *Taxonomy*

Allin, A. E.—Collection from the Georgian Bay region.

Krotkov, P.—Collection in Ontario; revision of the herbarium material.
Taylor, T. M. C.—The moss flora of Ontario.

C. *Genetics*

Strong, W. J.—A continuation of the genetical studies of the cucumber. Paper already published:—"Breeding experiments with the cucumber," Scientific Agriculture, Vol. XI, No. 6, Feb., 1931.

II. Cryptogamic Botany, Mycology and Forest Pathology

(Under the direction of Professor H. S. Jackson)

The last two projects are conducted in co-operation with the Forestry Branch of the Provincial Department of Lands and Forests.

Astrom, Miss I. E.—A cytological study of *Erysiphe aggregata*.
Cain, R. F.—A monographic study of Ontario Sordariaceae.
Hunter, Miss L. M.—(1) Life-history studies on species of *Melampsora* and *Melampsoridium*. (2) Comparative studies of the pycnia of rusts.
Jackson, H. S.—(1) A study of the rusts of South America based on the Holway collections. This is a taxonomic study dealing with a large collection of rusts made by the late Professor E. W. D. Holway, of the University of Minnesota, in South America. Publication is in the form of a series of papers in mycologia.
Jackson, H. S. and Thompson, G. E.—Studies of certain forest tree rusts.
Lehmann, A. J. V.—A study of the nuclear phenomena of the germination of the teliospores of certain species of *Lepto-Puccinia* and *Uromyces*.
Nobles, Miss M. K.—A study of the mycological flora of virgin soils.
Pady, S. M.—(Holder of a studentship from the National Research Council). A study of the development of the teliospores of certain forest tree rusts.
Thompson, G. E.—(Holder of a National Research Council bursary). A study of the diseases of poplar with special reference to a mycosporella disease of poplar.

III. Plant Pathology

(Under the direction of Professor D. L. Bailey)

Projects still under investigation are being handled by the following persons:

(1) Bailey, D. L. The dead arm disease of grapes. A close study of the development of this disease in selected vineyards has shown that it is likely to prove a limiting factor in older vineyards where large numbers of pruning stubs of considerable size are always exposed. In such vineyards the disease cannot be satisfactorily controlled by cutting out diseased portions. The feasibility of sucker replacements from the base of infected vines is being investigated along with other methods of control. Project sponsored by the Horticultural Experiment Station, Vineland.

(2) Fitzpatrick, R. E. Peach leaf curl. This study is designed primarily to determine the complete life cycle of *Taphrina deformans*, the causal organism of this disease. The project was co-operative with the Vineland Experiment Station and the National Research Council.

(3) Hindley, Sara R. Root parasites of vegetable crops. Miss Hindley is investigating the possibility of obligate parasites of a phycomycetous type being primarily associated with various root rots of vegetable crops. In addition to this rather general survey, Miss Hindley is concentrating on a wilt disease of egg plant. This project is co-operative with the Vineland Experiment Station.

(4) Hildebrand, A. A. Root Rots of Ginseng. This project has advanced to the stage where the etiology of the most serious rot, the so-called disappearing rot, is pretty well understood. The causal organism, a species of ramularia, has been studied fairly intensively in pure culture. This project is co-operative with the Dominion Plant Pathological Laboratory at St. Catharines and the Vineland Experiment Station.

(5) Ledingham, G. A. Cereal root rots. Mr. Ledingham has centred most of his efforts this winter on working out the life-history of a hitherto undescribed obligate parasite of the root hairs and young roots of wheat. While this has been fairly well completed, further cytological studies will be necessary to determine the approximate taxonomic position of this phycomycetous organism. This work has been supported by a National Research Council grant.

(6) Harborg, W. A. F. The so-called black chaff disease of wheat. At the Dominion Rust Research Laboratory at Winnipeg, many new hybrid wheat varieties with distinct promise as far as rust resistance is concerned have shown marked susceptibility to a disease whose causa l relations have not been accurately determined but which resembles the bacterial disease known as black chaff in some particulars. Mr. Hagborg has begun a critical study of the aetiology of this disease. During the summer Mr. Hagborg was supported by the Dominion Rust Research Laboratory and during the academic session he held a university open fellowship.

IV. PLANT ECOLOGY AND SEED STUDIES

(Under the direction of Professor H. B. Sifton)

Hamly, D. H.—Microchemical, histological and experimental investigation of legume seed coats with reference to their permeability to water.

Foulds, F. E.—The effect of pre-soaking on the germination of beans.

Cormack, R. G. H.—The effect of various external conditions on the growth of root hairs.

McGugan, Miss J. E.—The seed coats of the genus *Brassica*.

V. PLANT PHYSIOLOGY

(Under the direction of Professor G. H. Duff)

Duff, G. H.—Sulphur dioxide injury to vegetation. A field and experimental project of the National Research Council.

Duff, G. H. and Forward, Miss D. F.—The respiratory metabolism of wheat.

Krotkof, G.—Carbohydrate metabolism of wheat.

Forward, Miss D. F.—The parasitism of stem rust of wheat in relation to host physiology. A thesis for the doctorate has been presented, and a paper is in press.

This work has involved both pathology and physiology and was supervised jointly by the professors concerned.

Chemistry, under direction of Professor Lash Miller

Twenty-two students were engaged in research last winter under the direction of professors of the department of chemistry.

The degree of master of arts was conferred on five of these, viz.: Messrs. A. F. W. Cole, L. Farber, A. M. Fisher, J. R. Musgrave, and J. M. Zeavin; also on Messrs. J. C. Morgan and J. L. Rae, whose researches were directed by Professor E. J. King of the Banting Institute. The degree of master of science in agriculture was conferred on Messrs. A. L. Gibson and H. M. Scollie, whose researches were carried out in Guelph under Professor R. Harcourt.

The following were the subjects of research:—

H. M. Barrett, M.A.—Measurement of absorption by direct weighing.
F. Beamish, M.A.:—The quantitative determination of carbon dioxide.
Miss H. J. Bell:—The action of acids on yeast.
E. H. Brown:—Determination of sulphate in presence of large quantities of chromic acid.
Miss S. J. Clayton, B.A.:—The properties of brom-succinic anhydride.
C. E. Coke, M.Sc.:—The solubility of gases in emulsions.
A. F. W. Cole, B.A.:—Diffusion of copper sulphate in strong sulphuric acid solutions, and of iodine in solutions of potassium iodide.
Miss E. V. Eastcott, Ph.D.:—The purification of Bios II.
L. Farber, B.A.—The reaction of ethyl alcohol on stearin in presence of sodium ethylate.
A. M. Fisher:—The reaction of ethyl alcohol on beta naphtol benzoate in presence of sodium ethylate.
R. P. French, B.Sc.:—Vapour and liquid compositions in the system hexane, methyl-alcohol.
A. R. Gordon, Ph.D.:—The numerical evaluation of certain series and integrals.
H. C. Graham, M.A.:—The rate of reproduction of yeast.
J. M. Kane, B.Sc.:—Solubility relations in the system normal-butyl-alcohol, water.
F. B. Kenrick, Ph.D.:—The taste of acid solutions.
W. H. Martin, Ph.D.:—Measurement of Raman spectra.
A. Medcalfe:—Isolation of diamino-acids.
G. E. Moore:—The adsorption of water vapour by glass.
A. J. Mueller, M.A.:—The rate of reproduction of yeast.
J. R. Musgrave, B.S.:—The behaviour of artificial zeolites with solutions.
Miss H. Stantial, Ph.D.:—The sporulation of yeast.
R. E. Whiting, B.A.:—The Raman spectra of alcohols.
T. J. Wright:—Vapour and liquid compositions in the system hexane, methyl-alcohol.
J. M. Zeavin, M.Sc.:—The reaction of benzene with double acid anhydrides in presence of aluminium chloride.

Food Chemistry, under direction of Professor C. C. Benson

During this session four graduate students have been registered in this department and the master's degree has been granted to one of them.

Mrs. Mary C. Agnew has been working at the Hospital for Sick Children under Dr. Alan Brown and Dr. Tisdall, as well as under direction from this department. She has been studying the effect of diets deficient in vitamins A and D, and has found interesting effects similar to those which she had previously noted in diets used by the Chinese and Thibetans. She has been granted the master's degree for a part of her work, already completed, but is continuing work on other dietary defects.

Miss J. R. Panton, working under direction of the department of biochemistry, as well as under this department, is carrying on studies of the nitrogenous constituents of muscle, with special reference to the proteins of fish.

Miss E. I. Walker is studying improvements in methods of estimating lactose, and Miss K. Treacy is investigating certain physical and chemical properties of cream which influence its power of forming satisfactory foams.

Geology, under direction of Professor W. A. Parks

1. Professor A. P. Coleman (professor emeritus) was engaged in the following work during the year:

(*a*) Investigation of drift deposits near Toronto and Guelph, and of shore erosion on Lakes Ontario and Erie.

(*b*) A study of marine and freshwater interglacial beds along Abitibi River and at Moose Factory.

(*c*) A study of marine interglacial and postglacial beds near Port Churchill.

2. Professor Parks spent part of the summer of 1930 in an examination of the St. Lawrence lowlands of Quebec in connection with the oil and gas industry and Professor Moore spent the summer in studying the geology of the Goudreau and Michipicoten gold areas.

During the winter the following work was carried on in the laboratories:

3. *By Professor W. A. Parks*

(*a*) Preparation of a report on the structural geology of the lowlands of Quebec.

(*b*) Preparation of a paper on the geology of Gaspé.

(*c*) A study of a new species of dinosaur.

4. *Under direction of Professor W. A. Parks*

(*a*) Dr. M. A. Fritz—A study of the Permian Bryozoa of Vancouver Island.

(*b*) Dr. M. A. Fritz—A study of the Cache Creek Bryozoa of Vancouver Island.

(*c*) H. C. Laird—Completion of the study of the chert beds of the Lockport and Onondaga formations of Ontario (assisted by grant from National Research Council).

(*d*) E. J. Lees—The completion of a report on the geology of the Laberge area, Yukon.

(*e*) C. G. Clarke—A study of the Ordovician section of Joliet, Que.

(*f*) J. F. Caley—Preliminary work on the palaeontology of Manitoulin island.

5. *By Professor E. S. Moore*

(*a*) The geology of the Goudreau and Michipicoten gold areas, Ontario.

(*b*) The nature and origin of batholiths.

6. *Under direction of Professor E. S. Moore*

(*a*) D. R. Derry—On the genetic relations between pegmatite and aplite dikes.

(*b*) G. H. Charlewood—A physical and chemical investigation of the nature of carbonates in mineral veins.

(*c*) G. S. MacKenzie—The origin of the lead-zinc deposits of eastern Ontario. Differentiation in the Nipissing diabase sill at Cobalt, Ont.

(*d*) W. R. Nemerovsky—The microscopic structure of Nova Scotia coal.

(*e*) J. D. Wright—The age relations of certain granites north of Lake Huron and the origin of associated ore deposits.

Medical Research, under direction of Dr. F. G. Banting

Dr. F. G. Banting and Miss S. Cairns carried on experimental work with Rous chicken sarcoma. It was found that the serum of certain immune birds neutralised extracts of Rous sarcoma. Results indicated that this property is present only in the euglobulin fraction of the serum.

The investigation of the etiology of intestinal intoxication of infants was continued in co-operation with the department of paediatrics and the Burnside wards of the Toronto General Hospital. It was found that the trypsin and

lipase content of the stools of infants suffering from severe intestinal intoxication was low. Miss J. Lang, analyzing the same samples of stools, found that the amylase content was also decreased in amount.

With the assistance of Mr. G. E. Hall, it was found that diarrhoea could be produced in baby chicks by changes in atmospheric temperature.

Dr. G. C. Cameron has continued the study of experimental silicosis. Histological and chemical examination of tissues of animals which have received direct inoculation of several siliceous products were made with a view of correlating the findings. Mr. G. C. Morgan has been associated in the application of micro-analytical methods for the assay of silica in tissue.

Dr. E. J. King, with the assistance of Miss M. Shaw, carried out an investigation on an enzyme capable of hydrolyzing lecithin to liberate an inorganic phosphate. This enzyme has been shown to be present in varying amounts in a large number of tissues; it is most abundant in kidney and small intestine.

Dr. E. J. King and Mr. G. E. Hall have investigated the effects of overdoses of irradiated ergosterol to chickens. Overdosage of this form of vitamin D led to anorexia, loss of weight, cachexia and death. The outstanding chemical finding was that there was a decrease in the bone phosphatase of these birds.

Through the courtesy of Professor W. R. Graham, of the Ontario Agricultural College, a group of chickens suffering from "leg weakness" was examined. The chemical and histological examination of the bones of these birds did not differ from those of the normal.

Mr. Hall, assisted by Mr. Hull, carried on a vitamin and cereal feeding experiment with young Plymouth Rock chicks. In the absence of vitamin D, rickets were produced more readily on an oat diet than on one containing wheat or corn. Rickets were prevented by small doses of irradiated ergosterol, and growth was accelerated by crystalline carotine.

Dr. King and Mr. Hall, of this department, in co-operationwith Dr. J. Ross of the department of paediatrics, estimated the amount of erepsin and phosphatase in the small intestines of infants dying in the Hospital for Sick Children. It was found that children dying of acute intestinal intoxication had a smaller amount of these enzymes than children dying from other causes.

Professor C. C. Lucas (holder of the James Page Rutherford scholarship) spent three months of last summer in this department, working on the preparation of crystalline glutathione from yeast. He also attempted to isolate this tripeptide from normal and pathological urines. The material isolated agreed closely with glutathione in its qualitative chemical behaviour, but analysed micro-chemically it showed marked differences.

Mr. J. J. Rae has prepared quantities of several phosphatides from natural sources, including lecithin from egg, liver and brain, kephalin from brain, and phosphatidic acid from cabbage leaf. The glycerophosphoric acids of these phosphatides have been prepared, and, with the co-operation of Professor Kay, of the department of biochemistry, an attempt has been made to settle by rates of enzyme (phosphatase) hydrolysis whether these naturally occurring glycerophosphates are to be regarded as the alpha or beta variety.

Mr. J. C. Morgan has been engaged in an attempt to adapt the gravimetric procedure for the estimation of silica to a micro scale. It is hoped to follow quantitatively the fate of silica in experimental animals, to which silica is being administered in various forms and in different ways.

A micro-chemical laboratory was equipped and a course of instruction was given by Dr. Janet Brown, of the Imperial College of Science and Technology, London, England. Dr. Helen Stantial has carried on the micro-analyses in connection with research in this and other departments.

With Dr. McDonald of the department of pathology, a study has been made of the occurrence of calcium in cataract of the human eye.

Micro-determinations of nitrogen have been made for Dr. McHenry of the department of physiological hygiene, in connection with his work on histaminase,

and for Dr. Hamilton Walker, in connection with his work on potassium as a factor in the reproduction of yeast. Dr. Stantial has also done some work on the micro-colorimetric procedure for the estimation of silica, which was elaborated by Dr. King last year.

Mr. R. Charles of the Connaught Laboratory, carried on some micro-chemical analyses of crystalline insulin in the micro-chemical laboratory of this department.

Dr. Franks completed his work on the hexose phosphates in the glycolysis of tumour tissue last October, at which time he left the department to study in Germany.

Dr. T. Belt has been on leave of absence from this department during the past year. He worked with Professor Fisher at Frankfort, on certain diseases of the liver until February, 1931, and since then has been with Professor Aschoff of Freiburg.

The research work of this department has been greatly assisted by the whole-hearted co-operation and advice received from Professor W. R. Graham, of the poultry department of the Ontario Agricultural College, Guelph.

Medicine, under direction of Dr. Duncan Graham

The work of Dr. A. A. Fletcher, referred to last year, on the effect of a high vitamin diet on the changes occurring in the colon in chronic arthritis, has attracted the attention of workers in this field both in the United States and Canada, and a number of medical men have visited the clinic to observe this work. Dr. Fletcher has been appointed a member of the American Committee for the Control of Rheumatism.

Dr. R. F. Farquharson and Professor Graham have published a report on the effect of liver therapy on the spinal cord changes occurring in Addison's "pernicious" anaemia. They have shown that adequate liver feeding prevents the subsequent development of nerve lesions, arrests the progress of existing lesions and, in many instances, results in marked improvement of nervous signs and symptoms, more particularly those of relatively short duration.

Drs. Campbell and Gardiner have studied the effects on diabetic patients of a crystalline insulin prepared by Dr. D. A. Scott of the Connaught laboratories. They found that this preparation of insulin not only possessed the full activities of insulin but could be used with advantage in patients sensitive to the proteins of pig or beef, contained in the regular commercial preparations. A preliminary report has been published.

Dr. Detweiler has published the results of a careful investigation into the pollen content of the air in Toronto. This work is of importance in the investigation of cases of hay fever and asthma.

Dr. Hepburn is continuing the study of the electrocardiographic changes occurring in patients with metabolic diseases.

Dr. Falconer and Dr. Rachel Haight have completed their investigation into the relationship of the number of platelets to a decreased capillary resistance and the tendency to petechial haemorrhage of the skin. This work is a definite contribution to the study of the haemorrhagic diathesis.

Dr. E. J. Maltby, working in the department of biochemistry, has continued his investigation into the differences in the digestion of lean beef in patients with pernicious anaemia as compared with normal individuals. This work is being carried on under the John A. Stewart Fund for the investigation of pernicious anaemia.

Dr. Kenneth Gray, working under the same fund, has continued his study into the histological changes occurring in the bone marrow in anaemia.

Mineralogy, under direction of Professor T. L. Walker

During the summer of 1930 the members of the staff in mineralogy were able to devote considerable time to field work, visiting centres of mineralogical interest, with a view to studying the genetic relations of minerals, particularly as applied to the occurrence of some of the useful minerals. The material so collected along with that available in our very extensive collections of the Royal Ontario Museum of Mineralogy, has been the basis of the studies carried out mostly in the laboratories of the department.

Professor A. L. Parsons has continued his studies of the molecular structure of some minerals of the hornblende group. This work was done in association with Mr. Gilbert Greenwood in the laboratories of the University of Rochester. He has also completed his study of the zircon deposits in Renfrew county as well as some optical work on crystalline dolomite.

Professor Ellis Thomson has continued his studies on the mineralographic characteristics and genesis of the minerals associated with the silver minerals at Cobalt, Ontario, and in addition an examination of the telluride-gold minerals from western Ontario.

Professor T. L. Walker has continued his studies of natural lodestone, the principal result of which is to ascribe the polarity of these bodies to an unusual oxidation of normal magnetite. He has also devoted some time to an examination of the suite of minerals collected near the Winnipeg river in eastern Manitoba. This series contains a number of minerals which on development may add to the variety of the mineral production of Canada.

Of course it will be understood that, as the primary function of the staff is to teach mineralogy and petrography, only a small remainder of their time and energy is available for research work. In Contributions to Canadian Mineralogy 1931, a number of the University of Toronto Studies, Geological Series, some of the results of the work of the past year are published.

Obstetrics and Gynaecology, under direction of Dr. W. B. Hendry

During the absence of Professor Harding, due to illness, the studies in the toxaemias of pregnancy have been carried on by Dr. Mann and Dr. VanWyck with satisfactory results. The work in puerperal infection done by Dr. Dafoe in conjunction with the Connaught laboratories, has been so satisfactory that there have been no maternal deaths from this cause during the past year at the Burnside. The work of Dr. Goodwin in connection with the anthropological survey has resulted in the production of a pelvimeter which has proven to be more accurate than any other instrument of the same type now in use. The study of the effect of pregnancy on the length of the female ureter has commenced and is being carried out in conjunction with the department of genito-urinary surgery. An investigation of the anaemias of pregnancy has been commenced in conjunction with the department of medicine, and should, in the course of time, be of some value in determining the proper treatment of this condition.

Paediatrics, under direction of Dr. A. Brown

The prime object of the laboratories of the sub-department of paediatrics is to find better means of keeping the well baby well and restoring the sick child to health. Of necessity the problems investigated are of a practical nature and the results obtained have been found to be of value, not only to the physicians intimately associated with this work, but also to the doctors throughout the country, the parents in the home, and to all others interested in the care and welfare of children. The investigations have been particularly directed to the prevention of disease.

Mrs. Johnston, assisted by Miss Kaake, is completing the epidemiological, bacteriological and serological investigations of acute intestinal intoxication in infants. She has found that this clinical entity, which accounts for a large number of deaths each year throughout this province, is largely caused by bacteria of the dysentery group. Having traced the aetiological factor in this condition, Mrs. Johnston is now endeavouring, through the use of a bacteria phage and immune serum, to evolve a procedure of a therapeutic value for the treatment of this condition.

Dr. Drake has completed a study of the requirements of the older child for vitamin D. Up to the present time there has been very little knowledge of the requirements for this vitamin other than the voluminous work on rickets in infancy. This work confirms the opinion of various authorities, such as Professor E. V. McCollum, that a vitamin so essential for life in the infant is also necessary for the older child, and, no doubt, throughout the whole of life. Dr. Drake is also studying the antiscorbutic value of different foods from the standpoint of the practical paediatrician. Dr. Gladys Boyd is continuing her studies on diabetes and nephritis in children. Dr. Ormiston, one of the senior internes, has completed an extremely interesting and valuable study on the capillary blood-flow in various diseases encountered during infancy. Dr. Chant Robertson and Dr. J. R. Ross have continued their studies on the various dietary factors which influence the resistance of animals to infection. These studies are giving results which are of practical value in the care and feeding of infants and children. Further studies by these investigators on certain aspects of the effect of sunshine on the metabolism of the body are giving information which, when published, will create great interest among the medical profession.

Dr. Pearl Summerfeldt is continuing her investigation on anaemias as found in hospital patients. She is also investigating the various factors which effect the cure of anaemias produced in animals. Dr. Thompson has been studying the tissues of rats fed normal and various abnormal diets. Professor Oskar Klotz is very kindly checking Dr. Thompson's work and making a number of invaluable suggestions. Dr. Thompson has already discovered certain inclusion bodies in the salivary glands of rats which may possibly open up a whole new field of research in the virus diseases. Various other changes have been noted, which may considerably affect the so-called adequate diets used in the majority of laboratories for the breeding of animals.

The investigation of the high frequency machine presented to the department by the General Electric Company is being continued, particularly from the bacteriological standpoint. Results of interest are being obtained.

A great deal of time and energy have been devoted to a study of the vitamins and mineral elements in foods. During the past year the publications of this work have created considerable interest.

Although not research work as ordinarily understood, Dr. Drake has made a most interesting collection of ancient toys, ancient feeding bottles and various instruments of interest to the paediatrician. This collection, along with the extensive museum of wax models illustrating the various pathological conditions encountered during infancy and childhood, is of great practical value for teaching purposes. Dr. Drake during the past year published the results of an extensive investigation on the history of infant feeding by means of pap and panada.

Mrs. M. C. Agneau, who has spent many years in Szechwen, China, studying the diets of Chinese people, particularly from the standpoint of dental caries, is now investigating the influence of different diets in animals on tooth decay. The error most frequently made in previous investigations of this sort is that the dietary defects have been of a very serious nature and the experiment only carried on over a short period of time. The object of this investigation is to study the effects of changes in the diet over long periods. This work has been in progress for some eight months and will probably be continued for another year.

Pathological Chemistry, under direction of Dr. V. J. Harding

Research activities of the department have been prominent this year. The whole department is now co-operating in the research on the nature of sugars present in normal urine. Dr. D. L. Selby has done particularly valuable work in this connection in showing the possibility and occurrence of both glucose and fructose in the urine of normal individuals. Mr. G. A. Grant has devised a method for the analysis of galactose in both blood and urine. Mr. A. B. Cook is working out a possibility of the occurrence of glucosamine. Professor T. F. Nicholson is engaged in research on the analytical separation of glucose and fructose by bacteriological agency.

Pathology and Bacteriology, under direction of Professor Oskar Klotz

During the session of 1930-1931 the work in the department has been somewhat interrupted through the transfer of the laboratories from the old site at the Toronto General Hospital to the new Banting Institute. This interruption interfered with the work for a period of several months during which time it was not possible to carry out animal experiments. It was not until after the new year that work was fully re-established in the new quarters. The improved facilities which are now available in the Banting Institute are extremely helpful in enlarging the scope of the researches of the department. During the year there have been five fellows devoting themselves to special researches aside from the studies which were being carried out by the members of the regular staff.

Dr. R. M. Price has continued her investigations upon bovine tuberculosis under the auspices of the National Research Council of Canada. These researches have indicated the importance of the bovine infection in man, and also have been conclusive in showing that adequate pasteurisation of milk can completely control this infection for man. She has, furthermore, shown that occasional types of avian tuberculosis are encountered in human infections, also their incidence is relatively low. In another series of studies she has shown that the intimate relation which is found to exist between silicosis and the subsequent development of tuberculosis has its reason in the stimulating quality of silica in its colloidal state upon the growth of the tubercle bacillus. This study is of considerable importance respecting the presence of an extensive incidence of silicosis amongst miners in Northern Ontario.

Dr. C. B. M. Torres (Brazil) has been working as a special student under the International Health Division of the Rockefeller Foundation, and has given particular attention to the arterial lesions in early childhood arising in association with the acute infectious diseases. Dr. Torres has done some notable work on the problem of yellow fever, and will return to this problem at the end of the session.

Dr. G. Lyman Duff has held the George Brown Memorial scholarship during the past year and has continued his studies upon the early lesions of the intima arising in arteries. This work has been largely of an experimental nature and by it he has shown that certain toxic agents are capable of damaging the inner lining of the arteries. These experimental lesions simulate some of those encountered in man.

Miss C. E. Rice has continued her studies on the variations that may be induced in the types of tubercle bacilli. It has been found that these organisms may be modified by artificial cultivation wherein they may either adopt or lose certain characteristics. It is realised by these studies that the various strains of tubercle bacilli do not necessarily have fixed qualities, but that they may occasionally be forced to acquire characteristics simulating those belonging to other groups. This work is being correlated with some of the other studies carried out by the group of workers associated with the National Research Council.

Miss B. R. Wallace is investigating the natural infections occurring in lower animals and particularly in mice. It is necessary in experimental work in the laboratories to be fully conversant with the diseases which ordinarliy arise amongst experimental animals so that a proper interpretation may be given to specific studies on animals. Not a few studies in the past have been vitiated by a lack of appreciation of the natural diseases arising in experimental animals, during the course of a series of detailed experiments.

Professor Oskar Klotz has continued his studies on yellow fever and has made several publications upon this subject. He is also furthering investigations upon chronic pulmonary disease, particularly those related to fibrosing processes as arise in silicosis and fibrosing pneumonias. Another investigation at the present time nearing the stage of completion was made upon the lesions in the aorta antecedent to its spontaneous rupture. This condition has never been fully understood and it would appear that there is a definite damage arising in some of its tissues prior to the serious end-result. A study of the relation between the occurrence of silicosis and cancer of lung is also being continued.

Professor W. L. Holman investigated the claim respecting the presence of an ultra-microscopic virus in disseminated sclerosis. For this purpose Dr. Holman spent some time in the laboratories in England. He is also continuing his studies upon the influence of fatigue in bacterial infection.

Professor W. L. Robinson has completed his study of the pathology of bronchiectasis in man. The lesion in the lungs is not uncommon and an un usual opportunity for its study was made available through the surgical department from whom materials were obtained. He had also been devoting considerable time to improved mechanical aids in laboratory procedures. The camera for micro-photography, which was devised by him, has been of great service and is being used by laboratories elsewhere. He has also completed a device for the proper sharpening of microtome knives which has been a problem in every pathological laboratory.

Dr. P. H. Greey has completed a study upon the bacteriology of bronchiectasis. This study was based upon an analysis of nine cases of lobectomy. In this study it was shown that there is no specific micro-organism related to this lesion, but that a peculiar damage is imposed upon the bronchi whereby their walls are much weakened.

Dr. J. L. Little carried out an investigation upon the nature of the parasites arising in an epidemic of dysentery at an asylum. During the study he demonstrated the presence of the balantidium coli, this being the first case reported in Canada. He has also made a survey of the problem of the teaching museum as applied to instruction in pathology.

Dr. C. H. Greig studied the pathology of Ayerza's disease. Dr. G. H. Grant investigated the post-mortem infections with particular reference to anaerobic bacteria. Dr. C. R. K. Johnston—Organic changes arising in Grave's disease. Dr. O. L. Stanton—Malignant chordoma. Dr. H. L. Vanderveer—Hypervitaminosis D and arteriosclerosis. Dr. C. V. Bisgard—Empyema of subeural space.

Pharmacology, under direction of Dr. V. E. Henderson

A great deal of time by all members of the staff has been spent on studying the problems of palatable and useful prescribing. This has resulted in a series of articles for the Canadian Medical Journal, some of which will be found in the list of publications. This work has proved useful to physicians throughout Canada, and very favourable abstracts have appeared in the British Medical Journal and the Journal of the American Association. Dr. Lucas is one of the joint editors and Dr. V. E. Henderson has been appointed honorary editor of the Canadian Addendum and Formulary. This work has enlarged our knowledge of many of the problems of pharmacy and dispensing. It has required a great deal of experimentation.

A further study of nitrous oxide by Dr. Henderson, Dr. Lucas and Mr. Foster of the department of physiology is reaching a completion. A preliminary report was given at the meeting of the American Society for Pharmacology in April and attracted great interest. Dr. Lucas has also made some progress with the preparation and study of cyclopropane derivatives. This has proven a very difficult field of research. Dr. Johnston has studied the anaesthetic effects of cyclohexane and of furan. Papers on these two substances are in press. Dr. Johnston and Dr. Henderson have been engaged in an experimental study of spinal anaesthesia. A preliminary report containing some interesting information was given to the Academy in April. Dr. Scott, in conjunction with Dr. Mitchell of the Department of Surgery, has been engaged in a study of urinary acidifiers and antiseptics. The results attained are of considerable practical and theoretical importance.

Physics, under direction of Professor J. C. McLennan

In the session 1930-31 there were fifty graduate students in attendance in the department. Of these eighteen were enrolled for graduate instruction leading to the degree of master of arts (or M.A.Sc.), and twenty-four to the degree of doctor of philosophy. During the session ten students in the department received the degree of master of arts and two the degree of doctor of philosophy.

As in other years all the members of the professoriate gave advanced courses of instruction in theoretical physics and all the professors in the department have directed research workers or carried on research work themselves.

Special courses of lectures on recent developments in theoretical physics were given during the session by several of the research associates and by a number of professors from other universities who were invited by our University to do so. Among the latter were Professor G. Hevesy, of the University of Freiburg, who lectured in November on "Quantitative analysis by X-rays," and Professor V. Karapetoff of the department of electrical engineering, Cornell University, who held a conference with us in December on the "Properties of dielectrics." In the early part of January, Professor H. A. Kramers spent a week with us and besides participating in a number of conferences on research problems, he gave a series of lectures on the following subjects:—

(1) Wave mechanics and the spinning electron.
(2) Wave mechanics and kinematical models of atoms.
(3) Rotation of molecules.
(4) Magnetical properties of gases, liquids and solid bodies.
(5) Dispersion and magnetic rotation, and
(6) The limits of the applicability of modern quantum theory.

In the last week of March we had a visit from Professor R. H. Fowler of the University of Cambridge. He gave two lectures on "Some aspects of ferromagnetism," and one on "Gamma rays and their associated beta rays." He also participated in our discussions on "Problems in superconductivity," at one of the seminars of the department. On April 15, Professor Arthur Haas of the University of Vienna lectured on "J. Willard Gibbs and modern atomic theory," and on April 16, on "Light corpuscles, material waves and the laws of physics."

A list of the researches carried out or directed by the different members of the staff in physics is given in detail below. Some of these researches, it will be seen, were concerned with problems in spectroscopy. Others had to do with colloidal solutions, others with the electrical properties of metals at the lowest temperatures and others again dealt with cataphoresis and with surface tension properties of liquid films. The magneto-optical properties of thin metallic films and thin crystalline ones were also investigated. One particular research had to do with the duration of the metastable states of atoms, another with the heating

effects of short radio waves, while a third was on molecular synthesis and dissociation stimulated by the irradiation of gases with streams of high-speed electrons.

A series of researches of special interest to geo-physicists involved the location of ore bodies and lignite deposits by the use of special types of physical apparatus specially designed for the purpose. Through financial aid received from the Department of Mines of the province several pieces of electrical and magnetic apparatus of high precision have been secured. These are being used in the department for instructional purposes in the meantime, and in the vacation they will be used in the field, in association with the mines department, to help in making geophysical surveys. Attention should also be drawn here to a research carried out during the winter in Northern Ontario in the neighbourhood of James' Bay on "The height and location of auroral displays."

The importance of pure physics in so far as it relates to the use of radium, X-rays, and other radiations in medical practice has been emphasised by the appointment of the director of the physical laboratory to the Commission recently created by the Government of the Province of Ontario, to investigate and report upon all possible agencies likely to be of use in combatting the increasing menace to health from cancer. In this connection it may be of interest to mention that a member of the department has been able, through his knowledge of the properties of colloidal solutions and his ability to make them, to cooperate with some medical men in a series of preliminary experiments that already seem to indicate that certain types of colloids may be of service in retarding the development of cancerous growths.

In the statement which follows a few notes are given on each of the researches carried out in the department during the session.

A. *Researches under the direction of Professor J. C. McLennan*

A determination of the nuclear spin moment of indium—Professor J. C. McLennan, Miss E. J. Allin and Mr. K. E. Hall.

A study has been made of the lines λ4511, λ4102, λ3039, λ2933, λ2837, λ2754, λ2710 in the arc spectrum of indium. The line λ4511 was examined by means of a glass transmission echelon grating of 45 plates and a 21-ft. concave grating; the remaining lines by a quartz lummer plate 10 cm. in length and .496 cm. in thickness and by the 21 ft. concave grating. The structures observed indicate a probable nuclear moment of $\frac{1}{2}n/2\pi$.

Zeeman effect of hyperfine structure—Professor J. C. McLennan and Mr. A. M. Crooker.

The Zeeman effect of the hyperfine structure of some thallium II lines has been investigated by the use of a vacuum arc and with field strengths up to 25,000 gauss. The results should give on interpretation the "g" values and the magnitudes of the interaction energies of the various quantum vectors for the terms involved.

Arc spectrum of gold—Professor J. C. McLennan, F.R.S., and Dr. A. B. McLay.

An earlier analysis by the authors, Proc. Roy. Soc. A. 112, p. 95, 1926, has been extended by the identification of a number of new terms of the complex structure built on the $5d^9 6s$ ion. Many of these and of the ones of the same scheme that were known previously are correlated to series limits on the basis of almost complete JJ coupling.

Spark spectra of mercury and thallium, Hg II and Tl III—Professor J. C. McLennan, F.R.S., Dr. A. B. McLay and Mr. M. F. Crawford, M.A.

A number of terms of the complex structures of Hg II and Tl III that are built on their $5d^9 6s$ ions have been identified. The progressions of corresponding terms of this type in the Au I, Hg II, Tl III sequence are discussed.

Hyperfine structure and nuclear properties of thallium, lead and bismuth atoms —Professor J. C. McLennan, F.R.S., Dr. A. B. McLay and Mr. M. F. Crawford, M.A.

Hyperfine structure data for spectra of Tl, Pb and Bi obtained recently by the authors and others is discussed in the light of existing theories. Constants of interaction of nuclear and electronic angular moments, nuclear magnetic moments, and g values have been calculated whenever possible. Evidence is presented to show that the mechanical moments of nuclei appear to be the resultants of angular momentum arising from the spin and some other motion, probably orbital, of their protons and not due to spin only as is usually assumed.

The nuclear moments of the isotopes of lead—Professor J. C. McLennan, F.R.S., Mr. M. F. Crawford, M.A., and Mr. L. B. Leppard, B.A.

The hyperfine structure of several prominent lines of Pb III has been investigated with a concave and an echelon grating. The observed structure was consistently interpreted on the assumption of two I values, 0 and ½. The total intensity of the components attributable to atoms with $I = \frac{1}{2}$ was about one-fifth of the intensity of the single component due to atoms with $I = 0$. This intensity relation, in the light of Aston's results for lead, indicates that $I = \frac{1}{2}$ is the nuclear spin of the Pb_{207} isotope and $I = o$, the spin of the Pb_{206} and Pb_{208} isotypes.

The action of high speed electrons on the simple alcohols, aldehydes and ketones —Professor J. C. McLennan, F.R.S., and Dr. W. L. Patrick.

The chemical effects of cathode rays on gaseous formaldehyde, acetaldehyde, acetone, methyl alcohol and ethyl alcohol have been investigated. The principal reaction has been shown to be one of dehydrogenation and the compositions of the resulting gaseous mixtures have been compared with the molecular structures of the initial substances.

On the dilatation of superconductors—Professor J. C. McLennan, F.R.S., Mr. J. F. Allen, M.A., and Mr. J. O. Wilhelm, M.A.

This was an investigation into the thermal expansion and change of length in a magnetic field experienced by certain metals in passing into the superconducting state. Thermal expansion curves for both lead and Rose's metal were obtained between 4.2°K and 20°K.

The electrical resistance of Ru, RuC and W_2C—Professor J. C. McLennan, F.R.S., Mr. J. F. Allen, M.A., and Mr. J. O. Wilhelm, M.A.

In some early experiments a sample of ruthenium was found to exhibit the property of superconductivity. Later measurements have shown, however, that pure ruthenium does not exhibit this property. It was found that by our method of fusion of the metal there was formed tungsten carbide on the surface of the ruthenium. Samples of tungsten carbide made and tested showed the same type of superconducting curve and the same transition temperature, i.e., 2.05°K., as the early sample of ruthenium exhibited.

On the absorption band of Xenon at λ1469—Professor J. C. McLennan, F.R.S., and Mr. R. Turnbull, M.A.

Further research on the strong absorption band associated with the resonance line λ1469 of Xenon, has shown the influence of pressure, temperature and cell dimensions on the band width. The magnitude and nature of the effects has indicated the formation of a temporary molecule from a normal and excited atom of Xenon.

Duration of Metastable states—Mr. J. M. Anderson, M.A.

Measurements of the duration of the $^3P_2$ state in Argon have been made at room temperature and at liquid air temperature by means of the absorption of λ7635 A.U. Preliminary work on similar determination for metastable states in Neon have also been completed.

Raman effects with liquid and gaseous nitrous oxide—Professor J. C. McLennan F.R.S., Mr. H. D. Smith, M.A., and Mr. J. O. Wilhelm, M.A.

Spectrograms were obtained of the light scattered by clear liquid nitrous oxide. The wavelengths of the Raman lines observed were λλ4268, 4447, 4616 and 4826A. Two distinct frequency shifts were recorded with values 1282 cm^{-1} and 2223 cm^{-1}. Assuming a linear symmetrical structure for the N_2O molecule, it is shown that the two frequency shifts correspond to two of the characteristic vibrational frequencies of the molecule.

Effect of low temperatures on the ultra-violet transmission band of silver—Professor J. C. McLennan, F.R.S., Mr. C. E. Smith, and Mr. J. O. Wilhelm,M.A.

The ultraviolet transmission band of silver has been photographed at the temperatures of liquid air, liquid hydrogen, and liquid helium. By means of microphotometer traces the positions of maximum intensity have been obtained for these temperatures. The shifts have been determined and are being compared with observations on the dilatation of silver at low temperatures. The results are given of some observations on the absorption of various radiations by films of lead at different temperatures down to the lowest attainable.

Some observations on polar aurora in Northern Ontario, Canada—Professor J. C. McLennan, F.R.S., Mr. Hugh Wynne-Edwards, and Mr. H. J. C. Ireton, M.A.

The observations were made at Blacksmith Rapids and at Coral Rapids, situated respectively about 50 and 80 miles south of Moose Factory on James Bay. Photographs of auroral displays were taken simultaneously at the two stations. Over fifty plates were obtained of displays that occurred during January and February of this year. These plates are being measured up with particular reference to the lowest limit of the displays. The results indicate the commonest range of heights to be between 80 Km. and 120 Km. with individual cases as high as 250 Km.

On the magneto-optical properties of thin films of magnetic metals—Professor J. C. McLennan, F.R.S., Mr. H. D. Smith, M.A., and Mr. J. O. Wilhelm, M.A.

In this research observations are being made on the magnetic rotatory power of thin films of ferro-magnetic substances at various temperatures down to that of liquid helium, 4.2°K.

On the strengths of the electric currents induced in metals in the superconducting state—Professor J. C. McLennan, F.R.S., Mr. J. F. Allen, M.A., and Mr. J. O. Wilhelm, M.A.

In this research observations are being made on the relative strengths of electric currents induced in rings of different metals in the superconducting state when subjected to the same electromotive forces. Observations are also being made on the decay with time of these induced currents.

On the auroral green line of oxygen—Professor J. C. McLennan, F.R.S., and Mr. H. L. Welsh.

In this research transversal observations are being made on the Zeeman effect with the oxygen green line $\lambda = 5577$ A.U. Transitions of oxygen atoms from the $^1S_0$ state to the $^1D_2$ and $^3P_1$ states are also being investigated.

On the absorption of films of various salts at different temperatures—Professor J. C. McLennan, F.R.S., Mr. R. C. Jacobsen and Mr. J. O. Wilhelm, M.A.

The selective absorption shown by thin films of certain salts is being studied at various temperatures down to 4.2°K.

Measurements on standard wavelengths of light—Professor J. C. McLennan, F.R.S., and Miss F. M. Quinlan, M.A.

An attempt is being made to determine the absolute values of the wavelengths of radiations as far down in the ultraviolet as possible.

On some of the properties and uses of very short radio waves—Professor McLennan, F.R.S., and Mr. A. C. Burton, M.A.

This research is a condensation of one on the heating effects produced by these short radio waves. The factors determining these effects are being more

carefully studied than heretofore and attention is being paid in particular to the selective heating of different body tissues.

B. *Researches under the direction of Professor E. F. Burton*

Continuation of investigation of the properties of colloidal solutions—Professor E. F. Burton and Miss May Annetts, M.A.

The work in progress just now is a new phenomenon having to do with a step-by-step coagulation of arsenic sulphide solutions.

Estimation of moisture in substances—Professor E. F. Burton and Mr. Arnold Pitt.

Work on the measurement of moisture in substances has been continued and a variation of the apparatus has been produced which will likely be serviceable in measuring the rate of perspiration of the body of patients.

Changes in bone tumours after intravenous injections of a colloidal solution—Dr. A. Hendrick and Professor E. F. Burton.

The preparation of colloidal solution for the treatment of certain forms of cancer in collaboration with Dr. A. C. Hendrick.

C. *Research directed by Professor John Satterly*

The ridge at the junction of two liquid surfaces of different surface tensions—Professor John Satterly and Mr. W. D. A. Douglas.

Work is being continued on the surface-tension and viscosity phenomena of liquid films. In particular the drainage of wetted plates has received careful attention. Interfacial tensions and their changes with temperature are also being studied with the du Noüy ring tensiometer.

D. *Researches directed by Professor L. Gilchrist*

A method of geoelectrical investigation with parallel current electrodes—Professor L. Gilchrist and Mr. W. C. Wood.

This is a method similar in character to the central current point electrode method. A central line electrode and two symmetrically-placed parallel end line current electrodes constitute the arrangement. The end line current electrodes have uniform ground resistance throughout their length. A method of solution of the Laplace equation for the distribution of potential involving the experimentally determined surface boundary condition has been obtained for this arrangement.

Recent geoelectrical investigations in the neighbourhood of deposits of pyrite, pyrrhotite, lignite and chromite—Professor L. Gilchrist.

An account is presented of the results of electrical measurements of the conductivity of the earth in the neighbourhood of several deposits of minerals. The conductivities of pyrite and pyrrhotite were much less than that of the surrounding materials and these deposits were readily delineated by the field measurements. The conductivity of lignite as obtained by laboratory measurements was only four or five times that of the surrounding materials. The results of the field measurements showed that the depth of overburden could be determined with a fair degree of accuracy in many places. The conductivity of chromite was in general lower than that of the surrounding donite which was much affected by the presence of water, as these materials had a lower conductivity than water. While the results of the measurements gave a general indication of the presence of the chromite deposit it would appear that the presence of water made it very difficult to obtain definiteness of delineation by the electrical methods which were used in the investigation.

E. *Research directed by Professor H. A. McTaggart*

Effect of dissolved gases on the cataphoresis of small particles in water—Professor H. A. McTaggart and Mr. C. R. Ostrander.

Work has been carried on during the year on the effect of dissolved gases on the cataphoresis of small particles in water.

Psychology, under direction of Professor E. A. Bott

Ten graduates pursued special investigations under members of the staff in this department during the past session.

The degree of master of arts was conferred upon three students for theses presented upon their respective investigations. The authors and subjects of these theses were:

Miss M. Fleming—A method of evaluating the home discipline of the pre-school child.

S. S. Freedman—An experimental study of nationality preferences.

H. Goldhamer—The influence of area, position and brightness in the visual perception of a reversible configuration.

Other investigations in process are:

Mrs. R. W. Bartlett and W. E. Blatz—An evaluation of the results of parent education methods in house practice.

W. E. Blatz—Analysis of social behaviour in young children.

E. A. Bott—The time balance of muscle action in finger movement.

S. N. F. Chant—An objective test of reasoning in adults.

W. Line—Comparison of educational procedures in early public school grades.

Miss E. McCollum with J. D. Ketchum—The distribution of juvenile delinquency cases in a city environment.

C. R. Myers—Analysis of types of behaviour problems in the mental health clinics of Ontario.

K. H. Rogers with W. Line—The learning process in mentally subnormal persons upon occupational tasks.

D. J. Wilson—Kymographic measurement of motor performance in piano playing.

Radiology, under direction of Dr. G. E. Richards

Researches are being carried out in conjunction with other departments. Of these, the more important are: 1. Further investigations into the behaviour of the colon in various types of diet deficiencies. This has been very successfully studied in rats and is a continuation of work previously done in connection with arthritics. It promises to be very fruitful and is being continued by Dr. W. H. Dickson and Dr. A. A. Fletcher of the department of medicine. 2. A series of studies was undertaken in conjunction with the department of obstetrics to make accurate measurements of the pelvic angle during pregnancy and as a preliminary this work has been carried out on a series of normals for which a number of young lady medical students volunteered. 3. Studies of the toxaemias of pregnancy by means of intravenous urography with a view to ascertaining the incidence and importance of pressure upon the ureters by the gravid uterus. 4. Studies of the arterial system by the injection of the same drug into an artery instead of a vein. Considerable work along this line has been done elsewhere and seems likely to be of value in the investigation of a number of diseases involving the peripheral arterial system. Our own studies have not yet progressed beyond the stage of animal experimentation. The work is being done by Dr. Singleton and Dr. Lewis of the department of surgery,

Surgery, under direction of Dr. W. E. Gallie

A considerable amount of experimental work on animals has been carried out during the year and some of it promises to bring valuable results. Drs. Janes and Lewis have undertaken an extensive study of the production of bronchiectasis and some of their specimens are most instructive. They will have a paper ready for publication in the near future. Dr. S. D. Gordon has completed his study of the lymphatics of the thyroid and has sent a note on the subject

to the Canadian Medical Association Journal. He is now engaged in a study of the effect of various general intoxications on the histology of the thyroid gland. Dr. David R. Mitchell has been studying urinary antisepsis under the supervision of Professor Henderson in the department of pharmacology. Their laboratory findings are being tested out on the wards and give promise of satisfactory results. Dr. Lewis has made a study of the healing of fractures and the specimens obtained will be very useful for museum teaching. Dr. Shouldice has continued his investigations of intestinal obstruction. Altogether, the year has been an active one and the research laboratories have been more generally used than ever before.

Report of the Committee for Experimental Research in Medicine
(Dr. A. Primrose, Convener)

The Committee on Experimental Research begs to report regarding the work done for the session 1930-31 as follows:

This year has been a difficult one for our committee in that the consolidation of the animal rooms has been effected and it has been found advisable to administer this amalgamation by our committee. This has entailed the employment of two extra men. The work has increased to such an extent that it was necessary to take Cowan's assistant and put him in charge of the animal room. Another man was required to replace this assistant and still another to assist in the animal room. Since the new laboratory has been opened in the Banting Institute there has been a great increase in the number of men doing experimental work. This year there have been so many experiments done that Cowan, in addition to this, has cut approximately 1,800 sections and done 210 autopsies on experimental animals.

The following is a list of the members of the staff who are using the laboratories of the committee for experimental research:

Dr. Gordon
Dr. Murray
Dr. Janes and Dr. Lewis
Dr. Lewis
Dr. Mitchell
Dr. Shouldice
Dr. Keith
Dr. Couth
Dr. Maltby
Dr. Drake
Dr. K. Gray
Dr. Ross
Dr. Price
Dr. Duff
Dr. Goulding
Dr. Vanderveer
Dr. Little
Dr. Grant
Dr. Buchanan
Dr. Burnham

School of Engineering Research, Faculty of Applied Science and Engineering

The progress of the School of Engineering Research during the past year has been satisfactory. Research has been in progress in all departments of the faculty and results of considerable scientific interest and of possible industrial and engineering importance have been obtained. Bulletin No. 9 is in course of preparation in the press.

In the committee's report of last year it was recommended that, as many research assistants working under the auspices of the School of Engineering Research work also proceed simultaneously to the degree Ph.D. in the Graduate School, the regulations governing the granting of this degree to graduates of the Faculty of Applied Science and Engineering be so altered as to meet their particular needs. This, it was pointed out, would, in all probability, have a very desirable reaction upon the work of both the School of Engineering Research and the Graduate School. During the past year a change of this character has been made in one department of this faculty, the department of chemical engineering. It is now possible for graduates in this department to proceed to the

degree Ph.D. by pursuing work in a major subject and in one of two minor subjects wholly within the department. Evidence already exists of the wisdom of this change.

The number of graduates wishing to carry on research and to proceed to higher degrees is rapidly increasing. Indeed there is distinct evidence that the graduate work of this faculty will undergo a marked expansion in the near future. This is a direct consequence of the activities of the School of Engineering Research and is a further realisation of one of the objectives in mind at the time of the establishment of this school.

Following is a brief description of the researches in progress during the past year.

Department of Civil Engineering

Under the direction of Professor L. B. Stewart

The investigation of the elastic catenary as applied to base measurements has been continued and a paper embodying the results has been completed for publication. Further investigations relating to base measurements while metallic tapes are in progress.

Under the direction of Professor C. R. Young (with W. B. Dunbar)

During the year ten 20-ft. columns have been tested with a view to discovering the effect on strength of lateral support applied at mid-height, and also the amount of force necessary in order to maintain the deflection of the column constant at this point. The results have been very gratifying and have indicated close conformity with theory where the support has been at the mid-width of the column and a simple variation therefrom where the support has been at one edge. During the present summer nine more columns will be tested up to a maximum width of 16 in. From the data obtained it is expected that definite formulae or rules may be set up for the design of auxiliary or stay members introduced to hold columns in a given lateral position.

(with K. B. Jackson)

Twelve large specimens representing typical wind connections of girders to columns and six corresponding plain beams have been tested up to the limits of safe loading during the year, with a view to disclosing the relative rigidities of riveted wind connections and welded connections of two different types. The work has indicated a great superiority of the welded over the riveted connection so far as rigidity is concerned. As the most pressing structural problem connected with the design of tall buildings has to do with the provision of rigidity, it is believed that this work will be found of interest and value by the engineer. During the summer these specimens will be loaded to destruction and the analysis of results will follow.

(with W. B. Dunbar)

From time to time readings are being taken on the fourteen pressure cells in place on the outside surface of the deep sewers constructed in tunnel in the new North Toronto system. This work will continue as long as the cells show any variation of pressure. Many enquiries have been received for information concerning the observations, but the policy is being followed of making no statement whatsoever until the observations are complete. The work is being done in co-operation with the Department of Works of the City of Toronto.

Under the direction of Professor T. R. Loudon

An investigation of the stress distribution in tension plates containing rivet holes has been carried out, partly by the photo-elastic method and partly by measurements in the strength of materials laboratory with a view to obtaining information from which a rivet deduction formula might be derived. A paper has been completed embodying the results and from which a formula has been derived.

A research is in progress on the effect of shrinkage and temperature in concrete slabs on steel frames.

Department of Mining Engineering

Under the direction of Professor H. E. T. Haultain (with W. E. Johnston)

The research on some fundamentals of the cyanide process has been continued. This investigation is for the purpose of locating the causes of the tailings losses in our northern ores.

(with Professor F. C. Dyer and W. E. Johnston)

The method of analysis devised in this laboratory of the ball paths in tube mills by means of high speed motion pictures has been revised and improved. A new set of films has been completed.

Under the direction of Professor F. C. Dyer (with H. L. McClelland)

An investigation is in progress having for its purpose the application of ore dressing methods to one of the more difficult problems in separating weed seeds from the seeds of field crops.

Under the direction of Professor J. T. King (with S. E. Wolfe)

The study of the effects of cupel media on cupellation losses has been continued.

Department of Mechanical Engineering

Under the direction of Professor R. W. Angus (with R. Taylor and C. G. Heard)

An extensive series of tests were conducted on a Kaplan water turbine to determine power, speed, discharge and efficiency for various angles of the runner blades. These results were analysed to determine the interrelation between the two controls available for maintaining the best operating conditions in this new type of turbine.

(with C. G. Heard)

An investigation was made in the wind tunnel of the vibration of long flexible strands, as part of a study of the cause and remedy for the whipping of electrical transmission lines in the wind.

(with C. G. Heard)

Tests were conducted in the wind tunnel on industrial ventilators to study their characteristics with the purpose of improving their performance.

Under the direction of Professor E. A. Allcut

Distribution of mixture to multi-cylinder gasoline engines. The experimental work is finished and the report on this work is now being prepared.

Concealed radiator tests. An apparatus for testing concealed radiators has been erected and tests on steam and hot water are now proceeding.

Tests on insulating materials for buildings. A new apparatus has been designed and constructed for this work and experiments are proceeding to ascertain some of the laws governing the transmission of heat through insulating materials.

Department of Architecture

Under the direction of Professor E. R. Arthur

The study of the early architecture of Ontario which has been in progress for some time has been continued in the district around the town of Simcoe, the country from Kingston to Ottawa and along the Ontario side of the Ottawa river to beyond the town of Lancaster. Photographs and measured drawings were also made of houses in the Windsor and St. Thomas districts. Much valuable information was collected, particularly in the country between Kingston and Ottawa and near Vittoria in Norfolk county.

Department of Chemical Engineering

Under the direction of Professor J. W. Bain (with W. M. Inouye)

A study has been made of certain reduction products of lignin. Difficulties were encountered in effecting the reduction, but these have been overcome after several months' work, and the products of the reaction have been partially studied. No crystalline substances have yet been isolated, and the work will be continued.

(with J. H. Borland)

The behaviour of platinum surfaces exposed to various gases has been investigated with a view to discovering any abnormalities when the platinum was functioning as a catalyst. The electrical conductivity was selected for measurement, and it was found to be impossible to obtain a thin film of platinum which on repeated heating and cooling in the same gas would show concordant results. Near the close of the investigation some interesting but inconclusive results were obtained which will require further study.

Under the direction of Professor M. C. Boswell (with A. H. Boultbee)

In the course of an investigation of the dissociation of methane it was found that nickel is an excellent catalyst for the transformation of methane and steam into hydrogen and oxides of carbon. The effect of diminished pressure and the catalytic value of other bodies in this reaction have been studied. Very high yields of hydrogen are obtainable at rapid rates of passage. The results were presented at the May meeting of the Royal Society of Canada.

(with A. H. Boultbee)

A research on the catalysis of the action of metallic magnesium on water by solutions of some salts is in progress.

(with J. G. Breckenridge)

A study of the action of aluminum chloride and oxygen on dimethylaniline resulting in the production of penta methyl triamino triphenyl carbinol and the corresponding imine base was presented at the May meeting of the Royal Society of Canada.

(with W. M. Hutcheon)

An apparatus has been devised for the quantitative study, on a fairly large scale, of the chlorination of methane of natural gas, and has been found, in the laboratory, to be very suitable for this purpose. A study of the effect of certain conditions in increasing the yield of methyl chloride is in progress. A paper describing the apparatus and the early experiments was presented at the May meeting of the Royal Society of Canada.

(with R. K. Iler)

The study of the relationship of composition of nickel catalyst to catalytic activity has been continued.

(with H. L. Sandford)

A research is in progress on the properties of ferrous sulphide, particularly with respect to the composition of the intermediate products formed in its transformation into a catalyst for the reduction of sulphur dioxide to elementary sulphur.

Under the direction of Professor E. G. R. Ardagh (with F. C. Rutherford)

The conditions for obtaining a practically theoretical yield of acetophenone phenylhydrazone and benzophenone phenylhydrazone have been worked out, and graphs have been prepared to illustrate the influence of the Sörensen value (pH) of the solutions upon the times required to obtain these yields.

Under the direction of Professor E. A. Smith

(with J. D. Wright, G. M. Mason and G. V. Jansen)

A process has been devised for the industrial production of glacial acetic acid from dilute acetic acid liquors. The results of this work will be published in the near future.

(with A. R. Wallberg)

A study of the behaviour of peat on heating has been made. The results will be published this year in the Department of Mines Fuel Research Bulletin.

(with W. H. Macartney)

An industrial research problem on the weighting of silk is in progress.

(with W. L. Rambo)

A research problem on the constitution of Ontario peat and lignite is in progress.

Dr. R. R. McLaughlin

Two researches were carried out under the direction of Dr. Robison of the Lister Institute of Preventive Medicine of London, dealing with the preparation and isolation of two isomeric methyl hexose monophosphates. The results were published in the Journal of the Chemical Society.

Department of Electrical Engineering

Under the direction of Professor T. R. Rosebrugh

A mathematical paper on the "Analytics of Transmission Calculations" has been completed and was published in the Transactions of the American Institute of Electrical Engineers.

Under the direction of Professor H. W. Price

Frequency Control. This investigation has been concluded. A group of papers is in preparation. Two of the regulators are in permanent service in our laboratories controlling the frequency of 25 and 60-cycle services. A special application of our regulator is going into service at the Wind Tunnel, National Research Council, Ottawa, for automatically controlling to constancy any desired test conditions of velocity-head in the tunnel throat.

Standard electric clock. Means have been found for considerably reducing the power required to maintain amplitude, permitting reduction of variations in rate. This has necessitated an investigation of theory and facts regarding elastic hysteresis in steel, a subject about which little is known. This work is progressing with difficulties.

Department of Metallurgical Engineering

Under the direction of Professor R. J. Montgomery (with J. M. Higgins)

An investigation has been made of the properties of certain electrical refractory porcleain bodies using magnesium oxide as a flux.

(with E. R. Davy in co-operation with the Ontario Department of Mines)

A study has been made of the refractory clays of Northern Ontario with a view to their utilisation.

Report on Research in the Faculty of Dentistry

Fifteen graduates were engaged in this faculty in whole or part-time research, proceeding to high degrees. The following are the research problems undertaken by these candidates:

Periapical tissue changes in the teeth of dogs following various method of pulp removal and the use of various common drugs.

A study of the synthetic resins and celluloid combinations.

A study of expansion of die materials as applied to porcelain inlay technique.

A study of the physical properties of the precious metals and their alloys, with special reference to heat treatment and changes that occur in passing from a molten to a solid state.

Tissue changes incident to tooth movement.

The cause and effect of deep overbite in orthodontia.

A classification for the size, shape, colour and arrangement of the anterior teeth for the edentulous patient.

A study of the biological changes in the periodontal membrane throughout life.

The maxillary residual area.

The value of normal muscular action as related to normal occlusion.

The effect of muscular inactivity on the growth and development of the jaws.

Kinematics of the human mandible as applied to dental articular design.

Chemistry of foods with special reference to the teeth.

(13) PUBLICATIONS

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(14) REPORT OF THE DIRECTOR OF UNIVERSITY EXTENSION AND PUBLICITY

(*W. J. Dunlop, Esq., B.A., B.Paed.*)

Five thousand and ninety-six adults, 2,431 of them men and 2,665 of them women, attended continuous classes and courses in this department during the academic year; 29,100 persons attended extension lectures, of which number 9,604 attended lectures given outside of Toronto. The activities of the department during the year were as follows:

1. *The Teachers' Course.* Four hundred and ninety-five teachers took advantage of the instruction offered, 30 of them as "occasional students," all the others proceeding to the degree. Teachers' Classes, conducted during the winter session at the University and in Fort William, were attended by 284 teachers, while the others took advantage of the summer session. In addition, there were 15 teachers taking instruction in the summer session to qualify as specialists in some department of teaching. In the summer session there were also more than one hundred teachers taking the course in pedagogy at the Ontario College of Education, but these are not included in the total figure given above. The Teachers' Course, offered in teachers' classes during the winter and in the summer session, has proven itself to be a particularly valuable extension service. In the past eleven years, 239 teachers have graduated in this course and seven of these are now inspectors of public or separate schools. The standard is jealously guarded by the committee on the Teachers' Course. The calibre of the students is high.

2. *Extension Lectures.* This, the oldest form of extension service, retains its popularity; 202 lectures were provided during the year. These were distributed as follows:

Allandale 2, Barrie 4, Belleville 2, Blyth 1, Bowmanville 1, Brantford 5, Burgessville 1, Carleton Place 1, Chapleau 1, Chatham 1, Cobourg 9, Dunnville 1, Durham 1, Guelph 2, Hamilton 14, Harriston 3, Kitchener 7, Lansdowne 1, Milton 2, Niagara Falls 3, North Bay 3, Orillia 4, Oshawa 20, Ottawa 6, Owen Sound 1, Perth 1, Peterborough 4, Port Colborne 2, Port Hope 2, St. Catharines 13, Stouffville 1, Sudbury 1, Thornbury 1, Thorold 6, Toronto 70, Welland 2, Whitby 1, Wingham 1, Woodstock 1.

The members of the staff who gave Extension Lectures this year were:

Dr. W. E. Blatz 30, Professor Wm. Line 11, Professor J. Cano 8, Professor Barker Fairley 8, Professor E. Goggio 8, Rev. John Line 8, Professor J. F. Parkinson 8, Dr. E. J. Pratt 8, Professor A. P. Coleman 7, Mr. E. K. Brown 6, Mr. Arthur Lismer 6, Professor E. A. Dale 5, Professor W. M. Drummond 5, Dr. A. H. Young 5, Dr. H. A. Innis 4, Professor H. S. McKellar 4, Professor Norman MacKenzie 4, Dr. A. Brady 3, Professor G. W. Brown 3, Professor C. A. Chant 3, Miss Ruth Home 3, Dr. M. Hutton 3, Professor J. F. Macdonald 3, Dr. J. G. Althouse 2, Professor G. S. Brett 2, Professor H. M. Cassidy 2, Professor S. N. F. Chant 2, Miss A. L. Laird 2, Professor H. R. MacCallum 2, Professor F. H. Underhill 2, Professor R. K. Young 2, Professor E. A. Allcut 1, Professor F. H. Anderson 1, Professor C. A. Ashley 1, Professor B. de F. Bayly 1, Professor G. A. Cornish 1, Professor H. J. Davis 1, Mr. B. Debray 1, Professor P. Edgar 1, Mr. J. M. Elson 1, Mr. Robert Finch 1, Miss Mae Fleming 1, Miss Merle Foster 1, Dr. D. T. Fraser 1, Professor G. P. de T. Glazebrook 1, Professor E. A. Havelock 1, Dean C. D. Howe 1, Dr. G. W. Howland 1, Professor J. H. Iliffe 1, Professor W. Jackman 1, Professor G. E. Jackson 1, Professor G. M. Jones 1, Dr. O. Klotz 1, Professor A. T. Laing 1, Professor H. H. Madill 1, Professor C. Martin 1, Professor E. S. Moore 1, Dr. W. A. Parks 1, Professor C. B. Sissons 1, Professor G. O. Smith, 1, Mr. L. L. Snyder 1, Professor W. R. Taylor 1, Miss Evlan Westman 1.

3. *Correspondence Courses.* These courses are of two kinds, those provided as a preparation for the work of the summer session and those which are offered to teachers who are working for higher certificates under the Department of Education. In all, 723 students took advantage of these courses, which are restricted to teachers in the Province of Ontario.

4. *Evening Classes.* This is a branch of the work which increases rapidly from year to year. Forty-four classes were held at the University and others were conducted in Niagara Falls, Orillia, and Vanessa. These were attended by 2,393 students. In no case is the instruction given in these classes the same as that given in evening classes in other public educational institutions. The greatest care is always given to see that no class is offered at the University or elsewhere which in any respect invades the field of the technical schools or the commercial high schools.

5. *The Workers' Educational Association.* These classes, which are open to working men and women in the strict sense of the term, were carried on in Brantford, Hamilton, Kitchener, Prescott, St. Catharines, Stratford, Toronto and Windsor. There were 21 classes in all with an enrolment of 675. This very important work has developed greatly during the past two years with the aid of a grant made to the Workers' Educational Association by the Carnegie Corporation of New York. Mr. Drummond Wren, the secretary-treasurer and organiser for Ontario, has done a magnificent piece of work and is to be commended for his energy and ability.

6. *Occupational Therapy.* This course continues to prosper and is filling an important rôle in the life of the Dominion. Graduates have been placed during the year in Alberta, British Columbia, and Quebec. The establishment of this course, which has now been carried on for five years, has opened a new career for

young women. During the year the course has been reorganised and the entrance requirements are to be, in 1932, exactly the same as those for the pass course in arts.

7. *The Course in Teaching and Administration for Graduate Nurses.* This course has now been carried on for four years and is very highly regarded by the nursing profession. It, too, has been reorganised during the year and the standard has been made much higher than before.

8. *The Course in Physiotherapy.* For the first time a class was graduated in this course in June of this year. These graduates are required to pass a licensing examination conducted by the Board of Regents of the Drugless Practioners' Act of the Province of Ontario. It is gratifying to be able to say that all of these graduates passed that outside examination with high standing. Dr. T. W. G McKay, the secretary-treasurer of the Board of Regents, wrote to say that he was particularly well pleased with the work done by these young women and he expressed the opinion that the standard maintained in this course, which also was reorganised during the year, is particularly high. These graduates are now taking a three-months' interneship and it is expected that they will have little if any difficulty in obtaining positions at the end of that time. Physicians and surgeons speak most highly of these courses and requests for the services of these young women have come in from British Columbia and from Quebec.

9. *The Course for Pupil Nurses from Toronto Hospitals.* Each month a class of pupil nurses registers with this department for a course which is given them in co-operation with the Department of Public Health Nursing of this University 198 of them took the work during the year.

10. *Course for the Retail Merchants' Association.* This enterprise was carried on for the second time with 316 retail merchants enrolled. It is expected that next year an arrangement can be made to absorb these students in the regular evening classes so that the instruction they will be given may be more academic in character and therefore more valuable to them than has been possible in the experimental stage.

11. *Short Courses.* During the year there were four of these given and all were very successful. The time varied from two days to seven weeks. Short courses were arranged for private duty nurses, hospital staff nurses, visiting housekeepers and public health nurses.

12. *Canadian Credit Institute.* Correspondence courses, lecture courses, and examinations were conducted for this organisation, which is a subsidiary of the Canadian Credit Men's Trust Association. This service has been given to this organisation for some years and all arrangements have worked out satisfactorily. Other business organisations such as the Chartered Institute of Secretaries, the Canadian Society of Cost Accountants, the General Accountants' Association, and the Association of Accountants and Auditors have made arrangements by which, while they keep control of their own course and examinations, their students have the opportunity of taking lectures in the evening classes conducted by this department.

13. News items have been supplied almost daily to the newspapers.

14. The University's Exhibit at the Canadian National Exhibition was arranged as usual and was quite successful. However, it would appear that, as this form of publicity has now been carried on for ten years, it might be advisable to discontinue it for a year or two and to substitute radio lectures for a time as an experiment. One of the best of the broadcasting stations has offered the University the free use of its facilities whenever desired.

15. Addresses delivered in Convocation Hall on special occasions throughout the year have been printed in pamphlet form and distributed widely throughout the province.

16. Bulletins have been printed and distributed for the Royal Ontario Museum of Archaeology and the Royal Ontario Museum of Zoology. Bulletins entitled "Opportunities for Graduates in Science in the Faculty of Arts," "Opportunities for Graduates in the Faculty of Applied Science and Engineering," and the "Course in Architecture" have been distributed particularly to the secondary schools of the province.

17. Articles describing the University have been distributed, on request, to several magazines, periodicals, and Year Books.

18. The University's paid advertising has been placed in newspapers, periodicals, and magazines as in previous years.

Perhaps it may be in order to repeat a recommendation that has been made before that, as soon as it may be possible to do so, a man should be appointed to visit regularly the secondary schools of the province to explain to the students there the details of the courses that are open to them in the University, the careers for which they will prepare them, and the entrance requirements for these courses. It has been found every year that this is a service which is greatly needed and which would be highly valued by parents everywhere.

It will be seen from the figures given above that the increase this year in the number of students taking advantage of extension services has been greater than in any previous year. Every care is taken to see that no instruction is offered that is not unquestionably within the university's sphere. There are many requests for service which a university should not be expected to render and in all such cases the person making such requests is advised to deal with other institutions.

(15) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF SOCIAL SCIENCE

(Professor E. J. Urwick)

The number of diploma students in the department has more than doubled during the past session, fifty-seven new students entering the course in October. as compared with seventeen the previous year. Even so, it is doubtful whether the growing demand for university trained workers in all branches of social work will be met by the increased numbers; those who are best qualified to form an estimate are of opinion that the department should have at least a hundred students in training during the next few years.

A very satisfactory feature of the increased numbers is the large proportion of graduates—now more than twenty-five per cent. of the total. Several of these are combining work for the degree of M.A. with their work for the diploma of Social Science. In the case of those graduates whose undergraduate studies have included subjects specially pertinent to Social Science, it has been found possible to shorten the regular two years' course by six or eight months, provided satisfactory evidence of practical ability has been given.

The growth of the department, both in numbers and in quality of students, raises questions of great importance in relation to future development. The Senate's committee in charge of the course has given much consideration to these questions during the past year; and at the request of the Senate a special committee has now been formed to consider and advise upon the expansion of the department's work.

In addition to the teaching of the diploma students, special courses of instruction have again been given throughout the session for church workers, deaconesses, and for students in public health nursing and in occupational therapy. The department has cooperated with the department of university extension and the Canadian Council on Child and Family Welfare in arranging a summer course for workers engaged in institutional work for children.

(16) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF PUBLIC-HEALTH NURSING

(Miss E. K. Russell)

It is difficult to write a report for the session 1930-31, as the entire year has been overshadowed by uncertainty concerning future plans. It is not easy to speak of the present without reference to expected reorganisation and yet, at the moment, it is idle to speculate concerning the nature of the possible changes. Hence it seems wise to present merely a statistical report.

Throughout the year 49 candidates have been enrolled as students in the certificate and diploma courses in public health nursing and just over 200 more as occasional students. In addition, a share of responsibility has been undertaken for the conduct of the course offered by the Department of University Extension for nurses preparing for hospital staff positions. Further, in connection with the Extension Department, two refresher courses were given. The first in November was given to a class of 78 teachers from hospital schools for nurses; the second in May provided for a group of 45 public health nurses from the province.

The applications for admission to these courses have increased in number and are of a better quality than theretofore. Consequently for the year 1931-32 we are enrolling a class with a much higher educational standing than in any of the past years.

This school is still receiving a large number of visiting students from other countries, particularly from Europe. The majority of these are not, as in the past, seeking the preliminary training in public health nursing as this training is now obtainable at a number of schools in Europe. Our visitors are more often experienced public health nurses who are travelling for the purpose of gaining an insight into special public health activities. We are asked to receive and make plans for these students, and to give them care and supervision while here. It is an interesting piece of work but we are ill-equipped to do justice to it.

In its four-year course the department has established the principle of a direct training course for the public health nurse, one that shall include the hospital training instead of being added as a mere appendage to this. The new course marks the beginning of an effort to do serious original work in connection with nursing education, and the opportunity that now lies before the department is extensive as one piece of work after another opens up before it. But just enough has been done to show quite clearly that further resources are absolutely essential for the success of the work which has been already undertaken. Fortunately at this stage, encouraging suggestions concerning development are under discussion.

(17) REPORT OF THE DEPARTMENT OF MILITARY STUDIES

(Brig-Gen. G. S. Cartwright, Director)

I have the honour to submit the following report on the work in this department during the session 1930-31:—

The students taking this subject have shown great interest throughout the year and in addition to the academic course the special classes for the War Office (London) examinations for O.T.C. certificates "A" and "B" were well attended and good work done.

Small voluntary classes in "Tactics" and "Map Reading" were held to assist officers on the university staff to prepare for the examination in order to qualify for promotion in the Canadian militia.

Lectures on the Empire and on operations on the various fronts in the Great War were delivered during the year.

The enrolments in the Department were as below:—

	Arts	S.P.S.	Med. and Dent.	Total
1. II year Arts	24	..	..	24
2. III year Arts	13	..	..	13
3. IV year Arts	18	..	..	18
4. For students unable to attend 1, 2, or 3	55	40	8	103
5. Artillery	8	5	..	13
Total	118	45	8	171

The results of the November O.T.C. (War Office) examination were:—

3 obtained "A" Infantry certificate
4 " "B" " "

On 10th and 11th March, 1931, the following number wrote the O.T.C. examinations:—

For "A", Infantry	54
"B", "	17
"A", Artillery	5

the results of which have not yet been received.

Seven students attended the course of training with the Royal Canadian Air Force at Camp Borden last summer and five new candidates have been accepted for training this season.

(18) REPORT OF THE UNIVERSITY HEALTH SERVICE (MEN)

(*George D. Porter, M.B., Director*)

I.

This service has been in operation now for ten years and the original staff of physicians helping in the examination of students at the beginning of the fall term year by year are doing most excellent work.

Examinations

First year students	1,044
Second year students	702
Senior year students	443
Re-examined by specialists	32
Total	2,367

Results

Those found fit for physical training	92%
Those having some disability requiring supervised or light exercises	5%
Those unfit for physical training	3%

The causes of unfitness were found to be as follows:

Heart conditions	40%
Operations such as amputations, appendicitis, etc	30%
Chest troubles	13%
Rheumatism	7%

and the remaining ten per cent. were due to different causes.

Corrective Classes.—During the year there were 105 taking the regular work in these classes twice a week, while those who, through illness or accident, were unable to take the regular physical training classes were enrolled here until fit for regular work again.

Illness during the year.—This year the general health of the students has been excellent. We have been exceptionally free from infectious diseases such as scarlet fever, measles, whooping cough, mumps, etc.; diseases which not only cut heavily into term work for those affected but frequently necessitate loss of time through quarantine by others.

In spite of this, however, there are always those suffering from colds, influenza, accidents and minor infections which prevent their taking part in physical

training. For these we grant exemptions during the time of their illness or temporary incapacity. This year there were 609 students granted exemptions for one or more periods.

The most frequent cause for exemption was as usual here as it is elsewhere, the common cold; then follows the minor injuries such as sprains, occasional fractures, etc., and local infections.

Of late a good deal has been heard of athlete's foot, a popular name for a species of ringworm affecting the feet. This is a very common infection among those using golf clubs, gymnasiums, swimming tanks, etc. In many institutions there are as many as eighty per cent. of the students affected. Here there are less than five per cent. affected and of this number two-thirds brought it in with them this year. We are advising the wearing of sandals in the locker rooms and in the shower baths. The floors of same are thoroughly scrubbed and cleansed with disinfectants; towels are sterilised and we are doing all that is possible to keep down this mild infection.

As previously reported we have had no smallpox since compulsory vaccination has been in force and we are very fortunate in having a most satisfactory report on venereal diseases. Less than one case among every thousand students examined has come under our observation during the past ten years.

The Athletic Association has appointed a group of surgeons, under the director of health service, to attend to cases of emergency arising from accidents on the campus and in the gymnasium. This has proved very satisfactory during the past year.

A large and increasing number of students avail themselves of the opportunity for medical advice at the director's office at Hart House from day to day.

(18) REPORT OF THE MEDICAL ADVISER OF WOMEN

H.

October, 1930, saw the Medical Office for Women established in new quarters at 44 Hoskin Avenue. This central locality has proved more convenient for the students, and additional space provided better offices for the health service for the women. The use made by the students of its facilities is encouraging, and each year more are coming in contact with the medical adviser to learn something of how to keep themselves in good physical condition.

Physical Examinations.—During the year, 780 complete physical examinations were made. Of these, 430 were required of the entering women of University College, the faculties of medicine, household science, applied science and dentistry, and the Ontario College of Education. The remaining 350 represent all faculties, colleges and departments of the university.

The women taking part in competitive games are required to undergo a physical examination before participation, and 252 such students were examined before issuing eligibility certificates.

Reexamination of 56 students was made during the year. Some of these were enrolled in the special gymnastic classes for the correction of some postural defect; others had been in unsatisfactory physical condition at their initial examination, and had been excused from the physical training requirement. Wherever any defect was noted during the examination, the student's attention was directed to it, and suggestions made for its correction. In this way health education work has been done among the students, and it is gratifying to note how frequently such help is appreciated and acted upon.

Compulsory Physical Examinations.—Entering women students of University College, faculties of medicine, household science, dentistry and applied science.

Group I. Students physically able to participate in required physical training 88.3%

Group II. Students requiring supervised or corrective exercises 11.9%

Group III. Students unable to participate in physical training..... 7.8%

Many students report to the medical office yearly for a physical examination, and the habit of having an annual physical examination is thus inculcated. As a rule some improvement is noted.

Physical Examinations

University College	311
Victoria College	66
Trinity College	34
St. Michael's College	55
Faculty of Household Science	111
Faculty of Medicine	17
Faculty of Dentistry	2
Faculty of Applied Science	1
Department of Public Health Nursing	39
Department of Social Science	11
Department of Physio Therapy	6
Department of Occupational Therapy	4
Faculty of Music	1
Ontario College of Education	106
Ontario College of Art	1
Graduate students	11
Special and occasional	4
Total	780

Consultations.—The numbers of women coming into the medical office asking advice on individual health problems, receiving emergency treatment, reporting illness either in its initial stages or after recovery, wishing certificates of physical fitness for various purposes, are considerable. All faculties, colleges and departments are represented here.

Thirty-eight vaccinations were performed during the year, and several Shick and Dick tests were made.

Thirty-five students were sent to the infirmary in the University College Women's Union. This infirmary accommodation is greatly appreciated by the University College women, but more beds should be arranged for them. Accommodation for the women outside of University College needs to be provided. Each year there are neglected cases of illness among the women students in rooming houses, and there are no facilities for dealing with such.

Two small rooms, each with three cots, have made possible rest and quiet for the women students. The use to which these are put shows a great appreciation of the value of occasional rest periods to counteract the strain of long laboratory hours or heavy university schedules. Definite rest periods are also prescribed for those underweight and below par physically.

Lectures.—A series of three health talks, based on the needs of the women as revealed by the physical examinations, were given to the entering students. These were arranged through the courtesy of Miss Coventry, in place of one of the weekly gymnasium classes, and credit for attendance was granted.

Four lectures in personal hygiene were given to the students in Public Health Nursing.

In the four-year course leading to a diploma in physical education, twenty-five lectures in anatomy, physiology and personal hygiene were given to the first-year class; fifteen lectures and demonstrations in first aid and emergencies were given to the second year class; and twenty lectures in general hygiene were given to the third year class.

Needs.—The need for increased infirmary accommodation for the women of University College is greatly felt; and is pressing for some facilities for caring for the women outside of University College, living in rooming houses, apartments and boarding houses. These are not for cases of acute illness where hospital care is required, but rather to prevent such developing, through nursing care for a few days.

The continued vital need for adequate quarters for the carrying forward of the physical training requirements is most obvious. Even with the numbers limited to the first year women of University College, household science, medicine and applied science and dentistry, there is a tremendous overcrowding of the small space available.

The various teams in basketball and baseball cannot all find floor space for practice and games within the university, and some are obliged to go outside to be accommodated. This, I believe, is a bad precedent.

It is sincerely to be hoped that in the near future some further accommodation for the physical needs of the women will be provided.

(18) REPORT ON ATHLETICS AND PHYSICAL TRAINING

III. (*T. A. Reed, Secretary, Athletic Association*)

Compulsory Physical Training

Men students enrolled in first and second years		1,978
From third and fourth years (being deficient from previous years)		29
		2,007
Deduct those with credit for two years physical training but repeating academic work	159	
Deduct those medically exempt	39	
Withdrawn from college	21	
		219
		1,788

These 1,788 elected to take their physical training as follows:

In physical training classes	1,207
In the Canadian Officers' Training Corps	276
In the following intercollegiate and interfaculty sports (part time):	
Football	208
Soccer	51
Track	26
Harrier	7
English rugby	14
Basketball	113
Hockey	136
Indoor baseball	75
Boxing, wrestling and fencing	83
Swimming and water polo	65
Rowing	30
Gymnastics	19
In corrective classes	106
Not registered	46
	2,462
Less those in two or more activities	674
	1,788

General Physical Training.—Under the direction of Mr. Donald M. Barton and his instructors, J. E. McCutcheon, W. H. Martin and W. W. Winterburn, the various activities were conducted in the gymnasium and swimming pool. These included all students who were registered in compulsory physical training as well as students in the higher years.

There were 25 periods a week devoted to physical training on the gymnasium floor and 20 for special corrective exercises, 19 a week for boxing, wrestling or fencing, and two for gymnastics; during the winter, training on the indoor track was taken up on three afternoons, making in all 1,379 classes through the session.

Under the important branch of swimming and aquatics there were 12 periods a week for the learn-to-swim classes in which 164 men were enrolled, principally

first year men. In the life-saving classes there were also 12 periods a week in which 165 men enrolled. The Royal Life Saving Society of England made 291 awards to our men for proficiency in first aid to the drowning, being the highest number of awards granted during the year through the Ontario Branch. In addition to the above there were 42 periods a week devoted to the various water polo and swimming teams in the swimming tank, making in all 810 periods during which the work was supervised by the swimming instructor.

After four o'clock the gymnasium floors were devoted to competitive sport such as basketball and indoor baseball. In these activities 1,194 periods were held during this session, all under the personal supervision of the instructors.

Altogether the work covers every branch of athletics and should provide enough variety of interest to suit all types of student.

Intercollegiate Athletics.—In spite of the meagre showing in the way of championships, our university teams were of fine calibre and displayed that sportsmanship which has been characteristic of Varsity teams at all times. McGill University has the credit of winning ten senior intercollegiate championships out of thirteen, a feat unprecedented in Canadian intercollegiate athletics. Great credit therefore must go to them for this exceptionally fine record. Our own championships were restricted to the senior intercollegiate harrier, the junior intercollegiate rugby, the intercollegiate boxing, wrestling and fencing (the Tom Gibson cup), intermediate intercollegiate hockey, and the rowing championship.

263 men represented the University of Toronto on the various teams wearing the Blue and White, which, added to those in the interfaculty (see below) show that 1,705 students were engaged in competitive sport.

International Competition.—The hockey club visited Boston, Princeton and New York, playing Princeton, Yale and Harvard (two games). The boxing team visited the New York Athletic Club and the wrestling team the United States Naval Academy at Annapolis, New York. The basketball team made its usual Christmas trip, competing at the University of Buffalo, Syracuse University, Colgate University, Long Island University, New York University, Stevens Institute of Technology, University of Rochester and St. Bonaventure College. It is pleasing to report that in all these contests our Canadian men made a very fine impression.

Interfaculty Athletics.—Competition within the university was again one of the features of our athletic life. In fifteen different activities there were contests for the various cups which have been donated by graduates and friends of the university for competition intra-murally. In all, 1,442 students competed in these events.

Series	Cup	Winner	No. engaged
Rugby	Sir William Mulock Cup	St. Michael's	283 (12 teams)
Track	W. L. Rowell Memorial Cup	S.P.S.	98
Soccer	Arts Faculty Cup	Knox	147 (9 teams)
Harrier	J. Brotherton Cup	O.A.C.	75
Hockey	W. T. Jennings Cup	St. Michael's	235 (16 teams)
Basketball	Hon. Clifford Sifton Cup	St. Michael's	251 (20 teams)
Boxing, Wrestling and Fencing	Francis Davidson Cup	S.P.S.	59
Indoor Baseball	A. G. Spalding Cup	Sr. U.C.	240 (16 teams)
Swimming	A. M. Fitzgerald Cup	U.C.	61 (6 teams)
Water Polo	H. P. Eckardt Cup	Jr. Meds.	129 (10 teams)
Indoor Track	Toronto Cricket Club Cup	U.C.	45
Rowing		U.C.	54 (6 crews)
Tennis	F. Y. McEachren Cup (University Champion)	A. T. Balfour (Vic. IV)	66
Swimming	B. Durnan Cup (University Champion)	E. G. Sinclair (Dent. V)	35
Gymnatics	H. A. Wilson Cup	S.P.S.	16
			1,794
Less those in two or more branches of sport			352
			1,442

The Athletic Directorate.—The resignation of Professor C. H. C. Wright as a member of the Athletic Directorate is a distinct loss to university athletics. In his student days Professor Wright was prominent as a member of our university teams. On his return to the staff he became associated with the old gymnasium committee and was of great assistance in the building of the first gymnasium. It was largely owing to his suggestion and foresight that the university first had an athletic field. Then, when that field was no longer adequate, he was the promoter of the present university stadium and gave ungrudgingly of his time to the proper construction of that field. In the planning of Hart House he, together with Dr. J. W. Barton, made a comprehensive study of gymnasia in the large American colleges and the magnificent athletic equipment in Hart House is largely due to his advice. More recently he, together with Professor M. A. Mackenzie, proposed an artificial ice arena to be entirely under university control. These various enterprises have long since justified their existence and in a manner that surpassed the expectations even of their proponents. But it was not only in the physical development of the student that Professor Wright showed an interest. Realising that athletes were merely a means to an end and only part of the general development of the man, he, by his frequent counsel and advice, exercised an influence which made athletics a part of the development of a great university.

On the evening of February 11th a complimentary dinner was given and a presentation made to Professor Wright by the Athletic Association as a slight tribute to his twenty-five years' service. To this dinner all past and present members of the Athletic Directorate were invited.

The Athletic Directorate for 1930-31 consisted of Professor M. A. Mackenzie (president), Professor J. F. Macdonald, Dr. J. A. McCollum, Dr. W. E. Brown, Messrs. R. E. Diprose, J. W. Graham, J. D. Keith, J. D. Sinclair (vice-president), P. H. Sullivan, D. H. Traynor, J. R. White, and ex-officio, Dr. G. D. Porter, medical director, and T. A. Reed, financial secretary.

(18) REPORT ON PHYSICAL EDUCATION FOR WOMEN STUDENTS

(*I. G. Coventry, Physical Directress*)

IV.

During the session 1930-1931 there were 352 women students enrolled in the physical training classes and approximately 756 class periods of instruction given in the gymnasium.

The classes were divided as follows:

Compulsory physical training class with an enrollment of 307 students was subdivided into 14 class periods a week with an average attendance of 35 students at each class.

Students from University College	230
" " Faculty of Medicine	5
" " Faculty of Household Science	72
" " Trinity College	4
" " Victoria College	10
" " St. Michael's College	4

Diploma Course in Physical Education (four year course).—There were 45 students registered and the class was divided into 16 class periods with full attendance at each class during the year.

First year class	25
Second year class	7
Third year class	5
Fourth year class	8

Swimming.—There were 368 students from all colleges, faculties and departments enrolled for swimming instruction and practice and approximately 442 class periods of instruction during the session of seven months.

Students from University College	135
" " Trinity College	36
" " Victoria College	90
" " St. Michael's College	22
" " Faculty of Medicine	16
" " Faculty of Household Science	26
Public Health Nurses	22
Administrative staff	21

Compulsory Physical Training Class.—The compulsory physical training class, numbering 307 students, was subdivided into 14 classes on account of the inadequate floor space in the small undersized gymnasium, and to accommodate those students who could not attend the regular periods assigned for the required classes.

All the students in attendance tried the final examinations in general and corrective gymnastics. A report of the results of these examinations, including class attendance, was sent to the registrar. A very small percentage of students failed to obtain the requisite standards.

Corrective and Remedial Classes.—Additional class periods of instruction in corrective and remedial gymnastics were given to a number of students who were medically advised to attend this special course. The classes were personally supervised and marked improvement in the physical disabilities was noted at the end of the session.

Diploma Course in Physical Education—Students continue to show keen interest in the four year diploma course in physical education in which 45 students were registered.

An interesting and gratifying feature in connection with the course is the fact that the women graduates who have been granted a diploma in physical education are in constant demand as full-time physical directors in collegiates, technical and high schools in Toronto and other cities of Ontario.

(19) REPORT OF THE WARDEN OF HART HOUSE

(*J. B. Bickersteth, Esq., M.C., M.A.*)

Membership.—The number of undergraduate members of Hart House during the past year was approximately three thousand nine hundred and thirty and the number of senior members was one thousand and fourteen, namely, two hundred and sixty-eight faculty, six hundred and thirty-nine resident graduate and one hundred and seven non-resident graduate. The total membership of Hart House was thus four thousand nine hundred and forty-four.

Great Hall.—The enlargement and reorganisation of the kitchens, servery and adjoining rooms and offices took place during the summer. Demolition of the old servery began on 28th June and an unusually dry summer enabled the construction to be carried on without interruption so that the work was complete when the Great Hall opened on 29th September. The new wing, which was designed by Messrs. Sproatt and Rolph, is a simple but dignified addition to Hart House. It was financed by Hart House itself with the assistance of a generous grant from the Massey Foundation. The improvements thus effected have made it possible to deal much more efficiently than formerly with the many students using the Great Hall and have also added greatly to the comfort of the staff. The thanks of all members of Hart House are due not only to the Superintendent of Buildings and Grounds of the University and his department for their valuable co-operation, but also to Mr. J. R. Gilley (comptroller), Mr. W. R. Cowan (assistant comptroller), and Mr. A. Gunn (superintendent of the Great Hall), who did so much with respect to the planning and carrying out of these alterations and additions to the building.

Early in November amplifiers were placed in the Great Hall and have proved of great value on the occasion of big functions. The Hall Committee has long had under consideration the difficulty arising from the fact that so many lectures finish at one o'clock and the consequent pressure on the accommodation of the Great Hall. This problem was discussed with the various faculties and colleges and it is hoped that next year the hour of some of the lectures will be changed and the load at midday thus be more evenly distributed than it is at present.

Music.—This has been the ninth consecutive year in which a series of eight concerts has been given on Sunday evenings in the Great Hall. These concerts have now become extremely well known, though no mention of them is ever made in the press as they are for members of Hart House only. The opening concert was given by the Hart House Quartet, which has now won for itself an international reputation, and the remaining concerts were given by leading musicians in Toronto who are always ready to give their services to undergraduates. The Friday recitals were of a particularly high standard and each week attracted a large attendance. The songsters held on certain Sunday evenings in the music room and conducted by Mr. J. Campbell McInnes, have become one of the most valued features of the musical life of Hart House. A large collection of slides has now been made and this year the formation of a library of song books has been begun. As in former years, the Music Committee was responsible for the sale of student tickets for the annual performance of Bach's St. Matthew Passion in Holy Week, and five hundred and eighty-seven tickets were sold to undergraduates.

Art.—The year opened as usual with an exhibition of pictures by Toronto artists, thus giving freshmen and others an opportunity of becoming familiar with the work of local artists. In November there was a particularly interesting exhibition of oil sketches done during the summer in the Arctic by Mr. Lawren Harris and Mr. A. Y. Jackson. In February there was an exhibition of modern American pictures. The annual photographic exhibition arranged by the Camera Committee was of outstanding merit and that of work by members of Hart House also aroused much interest. Mr. H. S. Palmer, O.S.A., conducted the art classes, which were well attended. The interest shown in reproductions of the Old Masters exhibited in the little sketch room has led the Sketch Committee to undertake a rearrangement of this room so that it may become adequate for its purpose. Two pictures—one by Mr. F. S. Haines, the other by Miss Anne Savage—were added to the permanent collection of Canadian pictures owned by Hart House.

Debates.—A series of debates was held in the debates room. Few outside visitors were invited this year, the speakers being almost entirely undergraduates. The resolution at the first debate, which was a vote of confidence in His Majesty's government at Ottawa, drew a very large attendance. Major-General J. H. MacBrien spoke at the debate, dealing with expenditure on national defence. At the closing debate of the year three undergraduate members of the University of Porto Rico were present as honorary visitors, and spoke on a motion condemning the growing domination of the United States in the affairs of this hemisphere. This year for the first time an undergraduate speaker presided at every debate. The photograph of the Hon. G. S. Henry was added to those of other graduates of this university who have been or who are prime minister of the Dominion or of one of the provinces.

Student Christian Association.—The Rev. F. J. Moore, who has been director of the Student Christian Association for the past five years, resigned his position at the end of May. Under his guidance the work of the association has greatly developed, and "The Padre," as he has come to be called by members of Hart House, has not only won the respect and affection of all who have come into contact with him, but has made his position one of influence and real importance

in the life of the university. The Rev. Leonard Dixon has been appointed to succeed Mr. Moore. Mr. Dixon is a graduate of the University of Toronto (U.C. 1907). He then studied theology at Wycliffe College, taking his degree there in 1912. In 1913 he went to India at the request of Dr. J. R. Mott (now chairman of the World Student Christian Federation) and has since been working in that country. During the war he served in Mesopotamia with distinction.

Vistors.—Among those who have visited Hart House during the past year are the Archbishop of New Zealand, Lord Beauchamp, Mr. F. C. Goodenough (head of Barclay's Bank), Lord Moynihan, the Hon. G. D. Robertson, Sir Frederick Kenyon, Sir Henry Miers, Sir Edmund Chambers, Professor Bowley, Lord Stonehaven, Prince Tokugawa, Mr. E. W. Beatty, Mr. Jerome Greene, Mr. Raymond Massey, the Hon. G. S. Henry, Mr. A. M. Hind, Professor C. K. Allen (recently appointed Oxford secretary of the Rhodes Trust), Mr. Ludwig Mueller, the party of English headmistresses, Sir George Paish, Sir Ronald Lindsay, Prince and Princess Takamatsu of Japan, Dr. Charles Camsell, and the Governor-General of Canada. A thorough inspection of Hart House was made by Lord Beauchamp as it is hoped to establish a somewhat similar building for the University of London. Mr. Goodenough also hopes to incorporate many of the ideas of Hart House in the hostel which he is planning for the overseas students in London.

General.—There has never been a time when Hart House has been more used than during the past eight months. Each year proves more conclusively than the last that the building is too small. It is difficult, however, to see where expansion is feasible except by an extension eastward to Queen's Park. This would seem to be a possible development when funds become available. A military ball given by the Canadian Officers' Training Corps, University of Toronto Contingent, took place for the first time this year in Hart House. The Graduates' Ball on New Year's eve, the masquerade and the usual undergraduate functions were held with success. Mr. J. R. Johnston, having become secretary of Hart House, Mr. E. D. Fennell succeeded him last September as assistant secretary. The Massey Foundation has most generously made possible the construction of a new sitting-room for the Warden, which will enable him to entertain on a larger scale than has previously been the case.

The total number of persons serving on the various Hart House committees is one hundred and thirty-four, of whom the majority are undergraduates. They all meet for a special dinner in the Great Hall at the beginning of term. The enthusiastic co-operation of the undergraduate members and the invaluable assistance of the senior members of these committees together with the devoted support of the comptroller, the assistant comptroller and other members of the administrative staff are the main factors which make for the steady development of Hart House and all that it stands for in the life of the University. The undergraduates are elected to the committees by their fellow students in the spring and the interest in the elections is itself a proof of the desire of men to serve on these committees and thus play their part in the management of the various departments of Hart House.

(20) REPORT OF THE DIRECTOR OF THE CONNAUGHT LABORATORIES

(J. G. FitzGerald, M.D., LL.D.)

In this, the seventeenth report of the Director of the Connaught Laboratories, a brief review of some of the major activities for the period, July 1, 1930, to June 30, 1931, is presented. Still further expansion in both research and production has marked the period under consideration. Perhaps the most outstanding event during the year has been the successful culmination of efforts to

provide for extension of the hygiene building in which the university section of the laboratories is housed. Thanks to the great generosity of the Rockefeller Foundation and the splendid support of the Government of the Province of Ontario, this result has been achieved in the following manner. The Foundation has contributed an additional sum of $600,000 to the endowment of the School of Hygiene. This has been supplemented by an annual grant of $14,250 from the Department of Health, Ontario, and with the approval of the Board of Governors, the Connaught Laboratories Committee will utilise from $300,000 to $350,000 for the erection of the addition to the hygiene building. This latter sum is to be taken from the Connaught Laboratories' fund. Furthermore, an extension of the south wing of the building is under construction. This undertaking, which will cost about $45,000, will be paid for by the laboratories. This latter addition will consist of three floors 38 by 33 feet in dimension. The frontage of 33 feet extends easterly on College Street. Urgently needed space will be thus made available for the rapidly expanding insulin and liver extract production. It is anticipated that direct access to this new service section will be had by a driveway from College Street. This will prove highly advantageous in view of the increase in traffic to and from the university section of the laboratories. In the main extension mentioned above, additional research rooms will also be made available. Less than five years have passed since the hygiene building was completed. In that time, however, the growth of the laboratories has been such as to render these new building projects essential.

Research work, the primary function of the Connaught Laboratories, has been prosecuted with unremitting zeal during the present year. As in previous years, problems in the fields of infection and immunity, biochemistry, physiology, bacteriology, filterable viruses, etcetera, have been studied. At the recent meeting of the Royal Society of Canada, seventeen papers were presented in Section V in which results of investigations were presented. The complete list of publications by members of the staff will be found in Appendix A (13). The library has been added to during the year. Additional current journals have been taken in and new monographs and text-books purchased. The total of bound volumes now stands at 2,033. The library service rendered by those in charge of this important section has been of the greatest possible benefit and is constantly increasing in scope and in character. Problems of business administration have been most energetically and competently dealt with by the Comptroller and his staff. Liaison with the scientific workers has been at all times effectively secured.

Information service for health departments, hospitals and physicians has been constantly available as in the past. In addition, important arrangements whereby members of the staff of the laboratories may cooperate with physicians in the clinical trial of therapeutic sera and other biological products have been made. A notable illustration of this is afforded in the plan whereby concentrated anti-pneumococcic sera for the treatment of type I and type II pneumococcus infections were administered with the assistance of Doctor M. H. Brown of the staff of the Connaught Laboratories. An exceedingly thorough and painstaking study of the results accruing from the employment of diphtheria toxoid in a municipal campaign directed toward the specific control of diphtheria has been completed by Doctor Neil McKinnon and Miss Mary Ross, with the assistance of Mrs. Morgan. This investigation was made possible by the cooperation of the Department of Public Health of the City of Toronto and should be of great value to communities contemplating similar efforts to control a disease which in the light of present knowledge is preventable.

Staff.—The staff of the Connaught Laboratories now numbers 147 persons. Further additions to the scientific staff resident at the University Farm have been made by the transfer of Doctor P. A. T. Sneath and Doctor D. W. Cameron from the university section of the laboratories. New appointments of an

assistant comptroller and assistant secretary have also been made during the year. Doctor Donald Fraser, senior assistant director, represented the laboratories at an important conference of experts from many countries held in London in June. This meeting was convened to consider progress and methods in the specific prevention of diphtheria and scarlet fever and analysis of results of tests for susceptibility to these diseases. A number of changes in the staff of the laboratories have occurred during the year. Details of these have from time to time been communicated to the Governors through the medium of the Connaught Laboratories Committee as in the past. The death of Mr. James Coffey, for nearly eight years engineer in charge of plant, during the year is deeply regretted.

The public service work of the laboratories was, during the period under review, in point of volume in excess of that in any previous year. The products distributed include:—diphtheria antitoxin, tetanus antitoxin, scarlet fever antitoxin, anti-meningococcus serum, concentrated anti-pneumococcus sera, normal horse serum, diphtheria toxoid, Schick test outfits, scarlet fever toxin for Dick test, scarlet fever toxin for active immunisation, smallpox vaccine, typhoid vaccine, typhoid-paratyphoid vaccine, pertussis vaccine, tuberculin, rabies vaccine, liver extract (pernicious anaemia fraction), and insulin.

The Connaught Laboratories, during the past year, again cooperated with the Department of Health, Ontario, in the preparation of convalescent anterior poliomyelitis serum. Additional assistance in this direction may be afforded the department during the present (1931) summer by undertaking the assay of this serum, in experimental animals.

The countries in which the products listed above were distributed include:—Bermuda, British West Indies (Barbados, Jamaica, St. Kitts, St. Lucia, St. Vincent, Trinidad, etcetera), Chile, China, Irish Free State, Japan, Newfoundland, New Zealand, Roumania, South Africa, Uruguay and Venezuela.

The farm section of the laboratories has, in addition to the routine work undertaken there, provided facilities for valuable studies in various fields.

Visitors from the following countries have visited the Connaught Laboratories as well as the School of Hygiene during the year:—Belgium, China, Czechoslovakia, England, France, Germany, Greece, Ireland, Italy, Japan, Mexico, Roumania, Scotland, Siam, South Africa, Switzerland, Turkey, United States, Venezuela, West Africa.

All graduate and undergraduate students in medicine were, as in previous years, afforded facilities and opportunities for observing the work of the Connaught Laboratories.

In conclusion, deep appreciation of the assistance and cooperation of the Connaught Laboratories Committee of the Governors, and very especially the chairman of that committee, Colonel A. E. Gooderham, is hereby expressed. In addition, the loyal support of my colleagues and of the entire staff of the laboratories is most gratefully acknowledged.

The Connaught Laboratories desire at all times to be completely at the service of those for whom their activities may be of assistance in the domain of preventive medicine.

(21) STATEMENT REGARDING THE MUSEUM OF ARCHAEOLOGY

(Professor C. T. Currelly)

All the work of the museum for the past year has been dominated by the question of the new galleries, which are being so rapidly constructed; and a great deal of time has been spent in planning the future arrangement, and getting things ready for the tremendous labour of moving, which will come to us next spring.

As regards accessions, the year has again been singularly fortunate. In the department of prehistorics, we have received a very fine collection of the bronze

age weapons from Luristan. The remarkable skill and artistic ability shown in the making of these weapons has been one of the wonders of recent discovery. The most outstanding of our pieces are two bronze swords, one of which has the pure ear-pommel, which appeared later in Turkish weapons and was so characteristic of Venetian Renaissance daggers. An axe has for decoration a lion springing upon a gazelle, sculptured in the round; and in another axe, a lion forms the handle to a blade of iron.

In the Egyptian department, the most important additions have been a very fine royal heart scarab, and a beautiful wooden box with its original sealing.

This year has seen the addition of the most important piece that our classical department has ever received, a Cretan statuette of a bull-teasing athlete. It is a figure exquisitely modelled in ivory, representing a young, very slender-waisted girl with a gold fillet in her hair and a gold corslet and apron; her hands are raised to catch a comrade who has taken the toss of the bull and is coming over its back. This is one of the three early pieces known; the boy coming over the bull's back is in Crete, and a serpent-goddess of the same type of work is in Boston. This figure is of the greatest importance to the museum, as it represents the beginnings of sculpture in the classical area, the origins of European sculpture, and is one of the very high points in Cretan art. Another acquisition of major importance has been a complete tomb group of the geometric period, found near Athens: ten pottery bowls and vases, some of the rare egg shape with beautiful decoration, a long pin, two brooches, and some beads. There has also been obtained an object long desired, a high steatite stand lamp. Other accessions have been some potteries of the bronze age, a large, beautifully decorated vase with figures, a bronze spearhead with a heavy ball of lead, which will probably provoke a good deal of discussion. Another painting, this time of a British frontier military camp, has been added to the Roman-British series. This, unfortunately, is the last, as Mr. Forestier died soon after it was finished.

Again this year the greatest advance has been made in the department of arms and armour. Six magnificant suits have been obtained: a fluted Maximilian suit, a little after 1500; a splinted three-quarter suit, French, 16th century; a half-suit, 16th century, that belonged to a Knight Hospitaler of St. John of Jerusalem, who was also a member of the Medici family; a half-suit in which a most beautiful effect has been obtained by sinking panels of the steel. The greatest coup is the three-quarter suit that was captured by the English under the Earl of Pembroke at St. Quentin in 1557, which is said to have belonged either to the son of Anne of Montmorency or to the son of Admiral Coligny, the Huguenot leader. This with four other suits was brought to England. Some time ago the Earl of Pembroke sold it to Sir Henry Farnham Burke, Garter King of Arms, at whose sale we obtained it. The sixth suit is a remarkable one, a 16th or 17th century suit made in India, and containing practically every type of armour construction known. As a teaching piece, this is invaluable, as besides illustrating every type of armour on the one suit, the workmanship shows the wonderful mastery that the Indian craftsman had over metal at that time. Another outstanding object is a great headpiece belonging to the Knights Hospitalers of St. John, found in a well at Rhodes, and dating from the early part of the 15th century. Among other important additions are a collection of early spurs from Saxon times to the 12th century; a gun such as Champlain might have carried, and because simple and ordinary, very, very rare; a rondel dagger; a basilard, the favourite weapon of the well-off franklins; two shields and some polearms; the finest Cromwellian helm I have ever seen, which has been in Ireland ever since the days of the famous troubles, and was obtained from an Irish noble family; and a Charles I saddle that will be of help to us in mounting an equestrian figure of one of Charles's cavaliers.

The department of metal work has received an interesting collection of material connected with the early fireplace and cooking.

Our Chinese collection has been growing very steadily, particularly with outstanding pieces of the quite early periods: bronze work inlaid with gold and silver from some of the great tombs, important inscriptions, fine bronze ceremonial vessels, potteries, carved bone. Some extremely good porcelains have been obtained, filling serious gaps in the collection.

The collection of Italian art has received a very fine gesso Madonna and Child by Jacopo della Quercia, 1375-1438.

The department of printing and the book has again made notable accessions, particularly in the number of 16th and 17th century engravings of contemporary portraits. Special emphasis is being laid upon this type of print in order that we may have portraits connected with British, French, and Canadian history with which our books may be illustrated. The collection of postage stamps has steadily grown, and received a most valuable addition when the Canadian government authorised the presentation of a series of proofs of Canadian stamps for many years back.

Several important watches, one an English crystal-case watch by Ambrose Bliss, about 1650, have been added to the watch collection.

In the numismatic collection, the outstanding acquisition has been the first British medal, a magnificent gold jewel rather than a medal, which was presented by Queen Elizabeth to the more important ship captains who fought off the Spanish Armada.

Our general woodwork collection has received some very good French-Canadian pieces, three large wooden statues from the famous school of wood-carvers at Quebec, a large panel of the Last Supper from the same source, a crucifix by Coté, a panelled room, and a doorway and porch. A collection of Breton furniture and a few pieces of 16th century French carved walnut furniture we hope will be the beginnings of an important series.

The ethnographical collection has been singularly fortunate, as there has been added a fine collection of exquisitely painted Nazca pottery of about a thousand years ago, a beautiful Peruvian textile, a pair of carved leather sandals, and a weaver's basket and tools. The American Indian material has been coming in quite steadily, copper, stone, beadwork; and considerable progress has been made in the Eskimo and other collections.

The general work of the museum has gone on as usual. Approximately 12,500 objects have been entered in the accession catalogue, approximately 1,000 drawings have been made for the final listing. The making of cases, mounting of objects, and the general care of the collections have occupied a great deal of time. The two volumes of the catalogue of our classical vases were issued at the beginning of the year, and have been very favourably received.

Miss Home has continued her classes and lectures with marked success, and Miss Payne has most successfully handled her four classes a day from the Toronto public schools. The teaching work is getting more and more difficult, but the prospect of the new building helps one to forget the terrible congestion.

(22) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF ZOOLOGY AND BIOLOGICAL MUSEUM

(Professor B. A. Bensley)

On account of the crowded condition of the gallery, special attention has been given during the past year or two to the building up of the research collections of Canadian animals in all of the groups, and the arranging and cataloguing of these collections so as to make them more readily accessible for reference and study. Some of the groups, principally the vertebrates, are now in fairly satisfactory condition; in the case of others, for example insects and spiders, satisfactory progress is now being made, but it has not been possible yet to give the same attention to other invertebrate groups.

The rate of increase of the collections is still being accelerated, and their care continues to take more and more of the time of the staff. Among the more important donations received during the past year were a valuable collection of Canadian birds' eggs and nests, and the natural history journals of the late Edwin Beaupre of Kingston; a collection of insect galls from Dr. A. Cosens, a pair of passenger pigeons from Mr. W. E. Douglas, a collection of scientific bird skins from southwestern Ontario, the property of the late Alexander Gow of Windsor, three mounted passenger pigeons from Mr. Paul Hahn, a mounted passenger pigeon from Mr. Playter, a large collection of scientific publications from Wallace Havelock Robb of Kingston, and a similar collection from the Royal Canadian Institute, fourteen birds, three mammals, one turtle and some birds' eggs from the Toronto Parks Department; a collection of fourteen heads and horns and twenty cases of mounted birds, the property of the late Dr. J. F. W. Ross, and a painting of the bald eagle by the Brodie Club.

Other donations were received from:—A. E. Allin, Walter Alton, R. D. Black, Jr., P. E. Boys, A. E. Brandon, S. Brennan, Lorne Brown, C. N. Candee, J. A. Caron, F. L. Clark, Jos. W. G. Clark, C. H. D. Clarke, Mrs. Cook, H. O. Cooper, Prof. A. F. Coventry, Prof. E. H. Craigie, H. H. Crease, E. M. S. Dale, Walter Davidson, L. S. Dear, Jos. Dineen, Edgar Dunn, F. H. Emery, C. S. Farmer, Dr. W. P. Firth, H. Fulcher, Geo. Gartrell, Roswell Goldie, Reuben Green, Miss Gwyn, J. H. Haffa, Emmanuel Hahn, Miss Hahn, Prof. W. J. K. Harkness, Matthew Healey, C. E. Hope, J. A. Humphries, Dr. W. E. Hurlburt, Henry Jewell, J. W. Johnston, T. W. Jull, M. Landon, W. J. LeRay, R. V. Lindsay, Dr. G. H. W. Lucas, Prof. J. W. MacArthur, Prof. T. F. McIlwraith, D. A. MacLulich, John Mason, R. C. Merriman, Chas. Middleton, Mrs. L. Middleton, Jack Miner, Mrs. O. S. Mitchell, J. A. Munro, Mrs. G. H. Needler, Frank Nokes, Ontario Department of Game and Fisheries, J. P. Oughton, Pigeon Fanciers' Association, M. D. Platt, Orlando Porter, Dr. N. A. Powell, Dr. A. L. Pritchard, R. Rajotte, Dr. D. S. Rawson, B. Rideout, W. E. Ricker, W. E. Saunders, J. Scroggie, Dr. P. J. Scott, G. Foster Smith, N. Spreadborough, Dr. Fred Starr, C. J. Stoddert, H. P. Stovell, Edgar Sullivan, H. W. Swaine, Mrs. S. E. Sweetapple, A. L. Tester, S. L. Thompson, John Townson, J. P. Townson, A. Twining, A. R. Van, A. Viron, Sam Waller, D. Ward, R. B. Williamson.

Small but valuable collections of birds and mammals were purchased from Prof. A. B. Klugh, A. A. Wood, H. B. Haugh and Allan Moses. Osteological material was also purchased from a number of trappers and others in northern Ontario.

Much valuable research material was added to the collection, as a result of the faunal survey work carried on during the summer by the museum in Prince Edward and Bruce counties, and of the work of the Ontario Fisheries' Research Laboratory of the department of biology.

Additions to the pamphlet collection numbered 1,576, and in addition many complete volumes of such periodicals as the Condor, Auk, Journal of Mammalogy, Bulletin of the Northeastern Bird Banding Association, and Journal of Comparative Oology, have been added to the library through donation. The library has also received the gift of a number of bound books.

(23) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF GEOLOGY

(Professor E. S. Moore)

The Museum of Geology has received important additions to the gallery during the year 1930-31. The most outstanding gift has been a valuable specimen of gold ore showing the natural occurrence of gold in a vein. This gift was made by M. J. O'Brien Limited from the Cadillac-O'Brien Mine in Quebec. Dr. A. P. Coleman presented the museum with six large water-colour paintings

of geological features to be added to the collection of paintings which he previously donated to the museum.

Two life members have been added to the roll of benefactors of the museum of geology during the year: Mr. J. G. Dickenson, assistant to the managing director, M. J. O'Brien Limited, and Mr. J. C. Nicholls, general manager, International Nickel Company of Canada.

The removal of the gallery from the basement of the present building to the new building next year promises to add much to the usefulness and attractiveness of the museum in permitting the addition of much new material and a greatly improved arrangement of many of the exhibits now in the gallery.

The following is a list of the main additions to the collections during the past year, by donation, collection, and purchase:

Donations—Copper ores from the Coppermine district, N.W.T., by Mr. J. L. Hall, Northern Aerial Minerals Exploration Company; copper ores from Chuquicainata, Chile, by Dr. Geo. B. Langford; zinc ore from Edward's Mine, New York, by Mr. Don Meredith; lead-nickel specimens from Worthington mine, Sudbury district, Ontario, by Mr. W. S. Myhill; salt and anhydrite from salt dome, Texas, by Mr. L. P. Teas; kernite from Kern county, California, by Dr. W. F. Ferrier; gold ore in vein from Cadillac-O'Brien mine, Quebec, by Mr. J. G. Dickenson, M. J. O'Brien Limited; six large water-colour painting of geological features, by Dr. A. P. Coleman; specimens of "niggerhead" coal from Walsenburg, Colorado, by the director.

Collections by the director—Gold ores and veins, lead-silver ore, and iron formation from Michipicoten and Goudreau areas, Ontario, and rutile ore from Virginia.

Purchases—Native gold from California; rare specimen of apatite-mica vein, zircon, cyrtolite and uraninite from Lanark county, Ontario; pyroxene crystals illustrating structural features, from Lanark county; four relief models constructed by the Canadian Geological Survey illustrating the Frank landslide and glacial and structural features in the Canadian Rockies; itacolumite, or flexible sandstone, from India; gold ore from Cadillac township, Quebec.

(24) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF MINERALOGY

(Professor T. L. Walker)

During the summer of 1930, Professor A. L. Parsons, assistant director, spent some time on field work in Renfrew County, where he secured a fine series of zircon crystals from the famous deposit in Brundell township. The director made a trip to the Pacific coast, visiting some of the mining centres in British Columbia, Manitoba and in Northern Ontario. As usual, the field work secured a large amount of material for incorporation in our museum as well as for exchange with other institutions.

In the summer of 1931 the director, with the approval of the Board of Trustees, is visiting centres in Europe to secure specimens by purchase of exchange with museums and other long-established institutions with which to fill gaps in our already fairly complete collections.

As usual, much desirable material has been added by collection, purchase, presentation and exchange. Of particular importance is a large collection from the Department of Mines of British Columbia, which cannot at present be placed on exhibition. This valuable presentation, which contains many large specimens, presents a fine representation of the useful minerals of the province.

Important exchanges have been arranged with the United States National Museum, Leland Stanford University and the Paterson Museum.

The museum staff has continued the cataloguing, classification and as far as time permitted, the scientific study of some of the museum collections.

(25) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF PALAEONTOLOGY

(Professor W. A. Parks)

During the year the collection of invertebrate fossils has been increased by purchase and by the addition of a large series collected by the director in the province of Quebec. The generic set in the laboratory has been extended to include all the mollusca. The expedition of 1930 to the Red Deer River resulted in the acquisition of several dinosaur skeletons. The vertebrate preparators have been engaged chiefly in the mounting of three fossil rhinoceros from Nebraska; they have also completed the mounting of a head of a titanothere.

During March and part of April the director visited the greater museums of South America for the purpose of making exchanges. Many skeletons or parts of skeletons are to be sent to us in exchange for duplicate dinosaurs. Arrangements were made also for exchange of Ontario invertebrate fossils for South American forms.

The more important acquisitions during the year are as follows:

By donation

Slab of crinoid stems found in filtered water tunnel near Fleet and John Streets, Toronto—A. J. Anderson, Toronto.
Collection of Hamilton fossils from Genesco, N.Y.—A. G. Bottom, Toronto.
Collection of books—Mrs. J. T. Crawford, Toronto.
A series of Philosophical Society Publications—D. R. Derry, Toronto.
Specimen of *Favosites gothlandica* from Peterborough, Ont.—H. B. Herrington, Orillia, Ont.
Reprints from New York State Museum Reports—Prof. G. E. Jackson, University of Toronto.
Cretaceous fossils from the Cypress hills, Sask.—W. C. Lockhart, Sask.
Large collection of Ordovician fossils made by the director and presented by the Quebec Bureau of Mines.
Collection of Triassic fossils from Peace River—Dr. P. S. Warren, Alta.

By purchase

Collection of fossils from Bohemia—Ward's Natural Science Establishment, Rochester, N.Y.
Prints of coloured geological plates—Dulau & Co., London, England.

By collection

Skull and parts of small trachodont dinosaur, probably a new species.
Skull of a *Chasmosaurus*.
Good head and other parts of a large *Prosaurolophus maximus*.
Skull and most of skeleton of a small *Champsosaurus*.
Large and very perfect turtle.
Skull and parts of a new type of *Centrosaurus*.
Skin impressions and many odd bones.

APPENDIX B

REPORT OF THE REGISTRAR

(A. B. Fennell, Esq., M.A.)

I beg to submit the following statistics for the year ending June 30, 1931:—

(*a*) Distribution of the staff of the University and University College (furnished by the Bursar).
(*b*) Distribution of the staffs of the federated Arts Colleges (furnished by the Registrars of the colleges).
(*c*) Registration of students by faculties and years.
(*d*) Enrolment in the Arts Colleges (furnished by the Registrars of the colleges).
(*e*) Enrolment in the university departments in Arts (furnished by the departments).
(*f*) Registration in courses in the Faculty of Arts.
(*g*) Registration in courses in the School of Graduate Studies (furnished by the Secretary of the school).
(*h*) Results of annual examinations (furnished by the Secretaries of the faculties).
(*i*) Admission to degrees.
(*j*) Geographical distribution of students (furnished by the Secretaries of the faculties).

(*a*) DISTRIBUTION OF THE STAFF OF THE UNIVERSITY AND UNIVERSITY COLLEGE:

	Professors	Associate Professors	Assistant Professors	Associates	Lecturers	Directors	Assistant Directors	Instructors	Other Sessional Appointments
University (Faculty of Arts).....	38	30	19	—	22	—	—	—	111*a*
University College.....	14	9	6	—	14	—	—	—	10
Faculty of Medicine.....	21*b*	14	22	14	20*c*	—	—	—	180*d*
Faculty of Applied Science.....	15	12	9	—	16*e*	—	—	—	46*f*
Faculty of Household Science....	2	—	1	—	6	—	—	—	8
Ontario College of Education....	6	6	—	—	7	—	—	23	—
Faculty of Forestry.....	2	2	—	—	1	—	—	—	1*f*
Faculty of Music.....	—	—	—	—	3	—	—	—	1
Faculty of Dentistry.....	11	10*g*	1	9	3	—	—	—	21*f*
Social Science.....	—	—	1	—	7	1*h*	1	—	—
Public Health Nursing.....	—	—	—	—	14*i*	1	—	—	—

a 3 also in Medicine
b 1 also in University
c 1 also in University; 2 also in Dentistry; 2 also in Ontario College of Education
d 1 also in Dentistry
e 1 also in Medicine
f 1 also in University College
g 2 also in Medicine
h also in University
i 4 also in Medicine; 1 also in Dentistry

(*b*) DISTRIBUTION OF THE STAFFS OF THE FEDERATED ARTS COLLEGES:

	Victoria College	Trinity College	St. Michael's College
Professors.....	12	9	11
Associate professors.....	9	5	9
Lecturers.....	4	2	9
Instructors.....	1	..	..
Fellows.....	6	2	..
Reader.....	..	1	..

(*c*) REGISTRATION OF STUDENTS BY FACULTIES AND YEARS:

The number of students registered in the university, in colleges and faculties, in the session 1930-31, was 7,407, distributed as follows:

				Men	Women	Total
Faculty of Arts				2,196	1,728	3,924
University of Toronto	502	239	741			
University College	896	730	1,626			
Victoria College	447	499	946			
Trinity College	166	141	307			
St. Michael's College	195	144	339			
Registered twice	10	25	35			
Faculty of Medicine				760	60	820
Faculty of Applied Science and Engineering				846	4	850
Faculty of Household Science				...	230	230
Ontario College of Education				378	368	744
Faculty of Forestry				62	...	62
Faculty of Music				29	16	45
School of Graduate Studies				398	145	543
Faculty of Dentistry				216	28	244
Registered twice				40	17	57
				4,845	2,562	7,407

In departments there were registered 440, distributed as follows:

Department of Social Science	10	112	122
Department of Public Health Nursing	...	243	243
University Extension (Occupational Therapy)	...	36	36
University Extension (Course for Graduate Nurses)	...	19	19
University Extension (Physiotherapy)	...	20	20
	10	430	440

The grand total of registration for the whole university was 7,847, of whom 4,855 were men and 2,992 were women.

In addition there were 4,464 persons registered in the Department of University Extension in courses and at provincial centres which are referred to in detail in Appendix A (14).

The figures may be further analysed as follows:

FACULTY OF ARTS

University of Toronto

	Men	Women	Total
Teachers' Courses and Summer Session	226	200	426
Occasional Arts students	276	39	315
	502	239	741

University College

	Men	Women	Total
First year undergraduates	301	228	529
Second year undergraduates	274	187	461
Third year undergraduates	175	136	311
Fourth year undergraduates	121	128	248
Occasional students	25	51	76
	896	730	1,626

Victoria College

	Men	Women	Total
First year undergraduates	136	130	266
Second year undergraduates	138	170	308
Third year undergraduates	77	102	179
Fourth year undergraduates	96	92	188
Occasional students	..	5	5
	447	499	946

Trinity College

	Men	Women	Total
First year undergraduates	43	32	75
Second year undergraduates	49	44	93
Third year undergraduates	39	34	73
Fourth year undergraduates	35	30	65
Occasional students	..	1	1
	166	141	307

St. Michael's College

	Men	Women	Total
First year undergraduates	55	41	96
Second year undergraduates	59	40	99
Third year undergraduates	46	33	79
Fourth year undergraduates	31	29	60
Occasional students	4	1	5
	195	144	339

FACULTY OF MEDICINE

	Men	Women	Total
First year undergraduates	131	4	135
Second year undergraduates	126	10	136
Third year undergraduates	107	13	120
Fourth year undergraduates	114	6	120
Fifth year undergraduates	134	18	152
Sixth year undergraduates	122	7	129
Candidates for Degree of B.Sc. (Med)	5	2	7
Candidates for D.P.H.	13	..	13
Post Graduate students	7	..	7
	760	60	820

FACULTY OF APPLIED SCIENCE AND ENGINEERING

	Men	Women	Total
First year undergraduates	328	1	329
Second year undergraduates	229	2	231
Third year undergraduates	150	1	151
Fourth year undergraduates	139	..	139
	846	4	850

FACULTY OF HOUSEHOLD SCIENCE

	Men	Women	Total
First year undergraduates	..	69	69
Second year undergraduates	..	64	64
Third year undergraduates	..	54	54
Fourth year undergraduates	..	41	41
Occasional students	..	2	2
	0	230	230

ONTARIO COLLEGE OF EDUCATION

	Men	Women	Total
Students in attendance	144	266	410
Extra-mural students	55	64	119
Students in B.Paed. course	179	38	217
Registered twice	8	2	10
	370	366	736

FACULTY OF FORESTRY

	Men	Women	Total
First year undergraduates	17	...	17
Second year undergraduates	14	...	14
Third year undergraduates	13	...	13
Fourth year undergraduates	18	...	18
	62	...	62

FACULTY OF MUSIC

	Men	Women	Total
First year undergraduates	5	2	7
Second year undergraduates	11	8	19
Third year undergraduates	8	6	14
Candidates for Mus. Doc. degree	5	...	5
	29	16	45

SCHOOL OF GRADUATE STUDIES

	Men	Women	Total
Candidates for Ph.D	87	20	107
Candidates for M.A	124	50	174
Candidates for M.S	4	...	4
Candidates for M.A.Sc	10	...	10
Candidates for M.Arch	1	...	1
Candidates for Chem.E	1	...	1
Candidates for C.E	1	...	1
Candidates for E.E	2	...	2
Candidates for Mech.E	2	...	2
Candidates for D.Paed	50	10	60
Candidates for M.Sc. (Dent.)	3	...	3
Candidates for M.S.A	19	1	20
Graduate students	94	64	158
	398	145	543

FACULTY OF DENTISTRY

	Men	Women	Total
First year undergraduates	36	1	37
Second year undergraduates	39	1	40
Third year undergraduates	31	...	31
Fourth year undergraduates	34	...	34
Fifth year undergraduates	65	2	67
Candidates for Degree of B.Sc. (Dent)	11	...	11
Dental Nurses	...	24	24
	216	28	244

DEPARTMENT OF UNIVERSITY EXTENSION

	Men	Women	Total	Grand Total
B.A. Course				
Summer Session:				
Regular	106	94	200	...
Occasional	2	9	11	211
Teachers' Classes:				
Toronto:				
Regular	157	96	253	...
Occasional	5	14	19	...
Fort William:				
Regular	...	12	12	284
Specialists' Courses				
Summer Session:				
Regular	12	3	15	15
Registered twice	56	28	84	84

DEPARTMENT OF SOCIAL SCIENCE

	Men	Women	Total
First year full-time students	6	50	56
Second year full-time students	3	11	14
Part-time students	1	49	50
Special students (First year)	...	2	2
	10	112	122

DEPARTMENT OF PUBLIC HEALTH NURSING

	Men	Women	Total
Full-time students	...	48	48
Part-time students	...	195	195
	...	243	243

(*d*) ENROLMENT IN THE ARTS COLLEGES

(1) University College:

	Greek	Latin	Ancient History	English	German	German (Sc.)	French	Hebrew	Orientals Lit.	Orientals History	Ethics
First Year—											
Pass	11	283	76	292	33	72	291	32	105	..	..
Honours	9	58	88	71	21	..	84	..	..	..	8
Commerce & Finance	..	..	..	98	..	..	86	..	..	..	..
Second Year—											
Pass	8	53	17	273	11	41	241	13	87	29	51
Honours	10	29	9	54	22	..	49	3	..	1	13
Commerce & Finance	..	..	..	..	..	..	23	..	..	..	..
Third Year—											
Pass	5	17	8	125	10	..	91	9	75	9	76
Honours	8	17	17	28	12	..	18	..	..	..	8
Commerce & Finance	..	..	..	..	..	..	20	..	..	..	..
Fourth Year—											
Pass	5	21	9	113	7	..	71	4	54	26	63
Honours	3	9	4	28	11	..	24	4	..	2	4
Commerce & Finance	..	..	..	..	..	..	10	..	..	..	..
Totals—											
Pass	29	374	110	803	61	113	694	58	321	64	190
Honours	30	113	118	181	66	..	175	7	..	3	33
Commerce & Finance	..	..	..	98	..	..	139	..	..	..	..

NOTE—

In addition, these departments of the College provided instruction to students enrolled in other Faculties than Arts and in the Teachers' Courses: French 210; German 195.

(2) Victoria College:

	Greek	Latin	Ancient History	English	German	German (Sc.)	French	Orientals	Ethics	Rel. Know.
First Year—										
Pass	..	72	26	63	..	..	39	12	..	71
Honours	18	56	63	94	19	54	75	..	3	..
Commerce & Finance	..	..	..	..	..	..	35	..	..	..
Second Year—										
Pass	1	23	12	174	3	..	170	9	36	127
Honours	10	26	11	52	18	26	38	1	12	..
Commerce & Finance	..	..	..	..	..	..	11	..	..	..
Third Year—										
Pass	2	16	6	68	..	..	54	5	21	57
Honours	5	11	5	17	13	..	16	1	8	..
Commerce & Finance	..	..	..	..	..	..	4	..	..	..
Fourth Year—										
Pass	2	12	6	73	5	..	40	..	16	57
Honours	5	7	7	30	6	..	15	1	9	..
Commerce & Finance	..	..	..	..	..	..	2	..	..	..
All the years	..	..	..	..	..	..	..	..	..	58
Totals—										
Pass	5	123	50	378	8	..	303	26	73	370
Honours	38	100	86	193	56	80	144	3	32	..
Commerce & Finance	..	..	..	..	..	..	52	..	..	..

(3) Trinity College:

	Greek	Latin	Ancient History	English	German	French	Orientals	Ethics	Anc. Or. Hist.
First Year—									
Pass	1	26	..	30	4	28	..	..	..
Honours	5	12	18	16	5	26	..	..	..
Commerce & Finance	..	..	..	..	..	5	..	..	..
Second Year—									
Pass	..	26	..	37	6	43	2	5	..
Honours	5	10	4	14	9	13	1	..	1
Commerce & Finance	..	..	..	..	..	4	..	..	..
Third Year—									
Pass	..	5	..	26	5	29	1	12	..
Honours	3	3	3	3	3	5	..	..	..
Commerce & Finance	..	..	..	..	..	4	..	..	..
Fourth Year—									
Pass	..	4	..	33	1	23	2	14	..
Honours	2	2	2	6	3	7	1	..	1
Commerce & Finance	..	..	..	..	..	2	..	..	..
Totals—									
Pass	1	61	..	126	16	126	5	31	..
Honours	15	27	27	39	20	51	2	..	2
Commerce & Finance	..	..	..	..	..	15	..	..	..

(4) St. Michael's College:

	Greek	Latin	Ancient History	English	German	French	Philosophy	Ethics
First Year—								
Pass	3	74	4	81	9	67	..	..
Honours	1	10	9	12	3	17	..	..
Second Year—								
Pass	..	54	..	67	7	66	51	..
Honours	3	9	2	7	2	9	8	..
Third Year—								
Pass	1	30	..	43	2	38	37	27
Honours	3	9	..	9	1	8	8	8
Fourth Year—								
Pass	..	28	..	43	..	33	28	21
Honours	..	3	..	6	1	6	7	7
Totals—								
Pass	4	186	4	234	18	204	116	48
Honours	7	31	11	34	7	40	23	15

(*e*) ENROLMENT IN THE UNIVERSITY DEPARTMENTS IN ARTS:

The following tables exhibit the numbers attending lectures in the university departments in the Faculty of Arts, together with the number of those taking the practical work in the laboratories:

Department of Mathematics

	Pass	Pass and Honours	Honours
Faculty of Arts—			
First Year	358	151	52
Second Year	120	139	53
Third Year	53	43	17
Fourth Year	25	28	10
Faculty of Medicine—			
First Year	10	...	...
Second Year	4	...	...
Faculty of Applied Science and Engineering—			
First Year	...	328	...
Second Year	...	193	...
Totals	570	882	132

Department of Physics

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	455	..	171	171
Second Year	27	..	96	120
Third Year	8	..	27	35
Fourth Year	19	..	20	35
Teachers' Course	..	..	..	..
Faculty of Medicine—				
First Year	..	142	..	142
Second Year	..	36	..	..
Third Year	..	18	..	18
Faculty of Household Science—				
First Year	..	..	14	14
Faculty of Forestry—				
First Year	16	..	..	16
Faculty of Dentistry—				
First Year	..	..	37	37
School of Graduate Studies—	..	..	50	23
Department of Public Health Nursing—				
First Year	12	..	..	..
Ontario College of Optometry—				
First Year	14	..	..	14
Refresher Course--	..	18	..	18
Totals	551	214	415	643

Department of Biology

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	455	..	122	122
Second Year	102	..	64	166
Third Year	65	..	11	72
Fourth Year	42	..	15	51
Teachers' Course	35	..	..	35
Faculty of Medicine—				
First Year	..	137	..	137
Second Year	..	39	..	..
Third Year	..	37	..	37
Faculty of Household Science—				
First Year	..	..	6	6
Second Year	55	..	6	61
Faculty of Forestry—				
First Year	..	18	..	18
Fourth Year	..	18	..	18
Faculty of Dentistry—				
First Year	..	37	..	37
School of Graduate Studies	..	..	..	57
Department of Public Health Nursing	..	12	..	12
Ontario Agricultural College—				
Second and Intermediate Years	..	85	..	85
Third Year	..	34	..	34
Second Year Macdonald Institute	..	84	..	84
Ontario College of Optometry		13	..	13
Totals	754	514	224	1,045

Department of Botany

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	455	..	122	122
Second Year	20	..	46	66
Third Year	12	..	7	19
Fourth Year	27	..	6	33
Teachers' Course	19	..	..	19
Faculty of Applied Science and Engineering	..	65	..	65
Faculty of Household Science—				
First Year	..	..	12	12
Second Year	57	..	5	62
Third Year	47	..	..	47
Faculty of Forestry—				
First Year	..	17	..	17
Fourth Year	..	18	..	18
School of Graduate Studies	..	..	36	30
Ontario College of Pharmacy				
First Year	113	..	..	113
Second Year	136	..	..	136
Totals	886	100	234	759

Department of Chemistry

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	455	..	190	190
Second Year	49	..	85	134
Third Year	54	..	13	21
Fourth Year	7	..	6	13
Teachers' Course	19	..	..	19
Faculty of Medicine—				
First Year	..	142	..	142
Second Year	..	119	..	119
Faculty of Applied Science and Engineering—				
First Year	..	63	..	63
Second Year	..	54	..	54
Third Year	..	88	..	88
Fourth Year	..	5	..	5
Faculty of Household Science—				
First Year	..	..	12	12
Second Year	57	..	8	65
Third Year	46	..	..	..
Faculty of Forestry—				
First Year	19	..	..	19
Second Year	14	..	..	..
Faculty of Dentistry—				
First Year	..	35	..	35
Second Year	..	39	..	39
Third Year	..	31	..	31
School of Graduate Studies	..	..	32	17
Department of Public Health Nursing	12	..	..	12
Ontario College of Pharmacy—				
First Year	113	..	..	113
Second Year	136	..	..	136
Totals	981	576	346	1327

Department of Geology and Palaeontology

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
First Year	455	..	231	..
Second Year	..	..	10	10
Third Year	11	..	3	13
Fourth Year	8	..	2	10
Faculty of Applied Science and Engineering—				
Second Year	..	53	..	5
Third Year	..	45	..	24
Fourth Year	..	19	..	19
Faculty of Forestry—				
Second Year	..	14	..	..
Third Year	..	13	..	13
School of Graduate Studies	..	..	17	17
Occasional Students	..	..	3	3
Totals	466	144	266	114

Department of Mineralogy and Petrography

	Pass	Pass and Honours	Honours	Laboratory
Faculty of Arts—				
Second Year	19	..	9	28
Third Year	2	..	12	11
Fourth Year	..	..	2	2
Occasional Student	1	..	..	1
Faculty of Applied Science and Engineering—				
First Year	..	105	..	105
Second Year	..	50	..	50
Third Year	..	24	..	24
Fourth Year	..	7	..	7
Faculty of Forestry—				
Second Year	..	15	..	15
School of Graduate Studies	..	..	9	9
Totals	22	201	32	252

Department of Philosophy

	Pass	Honours
Faculty of Arts—		
First Year	..	11
Second Year	114	32
Third Year	190	16
Fourth Year	156	14
Teachers' Course	19	..
School of Graduate Studies	..	38
School of Graduate Studies (St. Michael's)	..	25
Department of Social Science	44	..
Totals	523	136

Department of Psychology

	Pass	Pass and Honours	Honours	Laboratory
Faculties of Arts and Household Science—				
First Year	..	..	5	..
Second Year	284	31	6	6
Third Year	83	21	4	111
Fourth Year	60	18	3	10
Department of University Extension—				
First Year	25	..	..	..
Second Year	28	..	..	..
Evening Classes and Teachers' Course	270	..	..	..
Faculty of Medicine—				
Second Year	90	..	..	..
Third Year	120	..	..	30
Fourth Year	28	..	..	..
School of Graduate Studies	46	..	..	25
Department of Social Science—				
First Year	40	..	..	..
Second Year	16	..	..	..
Department of Public Health Nursing—				
First Year	27	..	..	..
Fourth Year	9	..	..	..
Ontario College of Optometry	7	..	..	..
Special Students—				
Pupil Nurses	305	..	..	..
Occasional Students	14	..	..	..
Totals	1452	70	18	182

Department of Political Science

	Pass	Honours
Faculty of Arts—		
First Year	..	188
Second Year	190	241
Third Year	167	116
Fourth Year	107	111
Department of University Extension	526	..
Faculty of Household Science—		
Second Year	42	..
Third Year	5	..
Fourth Year	7	..
Faculty of Forestry—		
Second Year	13	..
Third Year	13	..
School of Graduate Studies	..	37
Department of Social Science—		
First Year	54	..
Second Year	14	..
Occasional Students	11	..
Totals	1149	693

Department of Modern History

	Pass	Honours
Faculty of Arts—		
First Year	..	135
Second Year	97	107
Third Year	128	39
Fourth Year	97	64
Department of University Extension	322	..
School of Graduate Studies	..	17
Totals	644	362

Department of Italian and Spanish

	Italian		Spanish	
	Pass	Honours	Pass	Honours
Faculty of Arts—				
First Year	15	3	109	45
Second Year	5	12	30	29
Third Year	1	3	32	14
Fourth Year	3	4	19	16
School of Graduate Studies*	..	3	..	4
Totals	24	25	190	108

*Methods of Research, Bibliography 13.

Department of Household Science
(Faculty of Household Science)

	Pass	Honours
Faculty of Arts—		
First Year	..	40
Second Year	..	41
Third Year	10	25
Fourth Year	7	25
Occasional Student	..	1
Faculty of Household Science—		
First Year	56	12
Second Year	57	7
Third Year	47	7
Fourth Year	35	6
School of Graduate Studies	..	2
Department of Public Health Nursing	36	..
Totals	248	166

Department of Food Chemistry
(Faculty of Household Science)

	Pass	Honours
Faculty of Arts—		
Third Year	24	26
Fourth Year	12	25
Candidates for Specialist Certificate	..	1
Faculty of Household Science—		
Third Year	47	7
Fourth Year	35	5
School of Graduate Studies	..	4
Totals	118	68

(*f*) REGISTRATION IN COURSES IN THE FACULTY OF ARTS

Courses	First Year				Second Year				Third Year				Fourth Year				
	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	U C	V C	T C	M C	Totals
Pass	255	56	26	76	200	120	45	68	150	86	39	50	122	73	38	44	1,448
Classics	9	7	3	1	5	4	3	3	6	5	3	3	2	5	2	..	61
Greek and Hebrew	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	2
Oriental Languages	..	..	..	..	2	1	1	..	..	1	..	..	3	..	1	..	9
Hebrew and Ancient History	..	..	..	..	..	..	..	..	..	..	..	..	1	1	..	..	2
Latin, (French or Greek Option)	5	15	2	3	1	4	1	3	..	..	..	..	..	..	..	..	34
French, Greek and Latin	..	..	..	..	..	..	..	..	..	..	..	2	2	2	..	..	6
Modern Languages	22	23	11	3	33	20	10	3	22	16	6	6	17	13	7	6	218
English and History	36	34	7	5	16	21	6	4	13	11	2	5	16	18	5	3	202
Modern History	3	5	2	..	9	11	5	..	1	5	..	..	9	9	1	..	60
Political Science and Economics	14	7	5	..	21	12	4	..	14	3	5	..	14	11	2	..	112
Law	5	2	1	..	15	11	5	..	7	1	3	2	..	..	..	..	52
Philosophy	2	..	..	..	11	12	..	8	4	5	4	8	4	5	..	7	70
Philosophy (English or History Option)	1	3	..	..	2	7	..	2	1	3	..	..	..	5	..	..	24
Psychology	3	2	..	..	6	..	..	..	4	..	..	..	2	1	..	..	18
Mathematics	6	5	1	..	4	3	1	1	1	2	..	..	1	5	..	..	30
Mathematics and Physics	18	13	2	1	20	16	1	2	5	6	1	1	3	6	..	..	95
Physics and Geology	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	1
Physics and Chemistry	1	1	..	..	1	1	..	1	1	..	1	..	1	..	..	..	8
Natural and Physical Sciences	32	36	9	1	..	..	..	..	..	..	..	..	..	..	..	..	78
Physics	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1
Biology	..	..	..	..	1	4	..	..	2	4	1	..	4	1	1	..	18
Physiology and Biochemistry	..	..	..	..	..	1	1	..	..	..	..	..	2	1	..	..	5
Biological and Medical Sciences	..	..	..	..	12	7	2	..	5	5	1	1	7	8	2	..	50
Chemistry	..	..	..	..	3	..	1	1	3	1	..	..	2	1	1	..	13
Chemistry, Mineralogy and Geology	..	..	..	..	2	2	..	..	8	..	..	..	1	..	..	..	13
Geology and Mineralogy	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	..	2
Household Economics	22	16	1	1	14	25	1	1	12	13	..	..	15	9	1	..	131
Commerce and Finance	95	41	5	5	80	26	6	1	51	12	7	1	21	13	4	..	368
Totals	529	266	75	96	461	308	93	99	311	179	73	79	249	188	65	60	3,131

(g) REGISTRATION IN COURSES IN THE SCHOOL OF GRADUATE STUDIES

	Ph.D.	M.A.	M.S.	M.A.Sc.	M.Arch.	Chem.E.	C.E.	E.E.	Mech.E.	D.Paed.	M.S.A.	M.Sc. (Dent.)	Grad.
Dept. of Anthropology	..	2	..	..	..	..	..	..	..	..	..	..	1
" " Architecture	..	..	..	..	1	..	..	..	..	..	..	..	..
" " Biochemistry	5	7	..	..	..	..	..	..	..	..	2	..	6
" " Biology	11	9	..	..	..	..	..	..	..	..	11	..	10
" " Botany	14	9	..	..	..	..	..	..	..	..	1	..	6
" " Chemistry	4	13	..	..	..	..	..	..	..	..	3	..	2
" " Chemical Engineering	2	..	..	8	..	1	..	..	..	..	..	..	1
" " Civil Engineering	..	..	..	..	..	..	1	..	..	..	..	..	..
" " Classics	4	9	..	..	..	..	..	..	..	..	..	..	11
" " Dentistry	1	..	..	..	..	..	..	..	..	..	..	3	1
" " Educational Theory	..	..	..	..	..	..	..	..	..	..	..	..	1
" " Electrical Engineering	..	..	..	1	..	..	..	2	..	..	..	..	..
" " English	2	13	..	..	..	..	..	..	..	..	..	..	24
" " Epidem. & Biometrics	1	..	..	..	..	..	..	..	..	..	..	..	..
" " Food Chemistry	..	2	..	..	..	..	..	..	..	..	..	..	1
" " Forestry	1	..	..	..	..	..	..	..	..	..	..	..	1
" " Geology	11	2	..	..	..	..	..	..	..	..	..	..	5
" " German	..	3	..	..	..	..	..	..	..	..	..	..	1
" " History	3	14	..	..	..	..	..	..	..	..	..	..	1
" " Household Science	..	2	..	..	..	..	..	..	..	..	..	..	..
" " Hygiene	2	..	..	..	..	..	..	..	..	..	..	..	..
" " Law	1	14	..	..	..	..	..	..	..	..	..	..	1
" " Mathematics	3	8	..	..	..	..	..	..	..	..	..	..	1
" " Mechanical Engineering	..	..	..	..	..	..	..	..	2	..	..	..	..
" " Mineralogy	..	..	..	..	..	..	..	..	..	..	..	..	1
" " Mining Engineering	..	..	..	1	..	..	..	..	..	..	..	..	..
" " Pathology and Bacteriology	2	1	..	..	..	..	..	..	..	..	..	..	2
" " Pathological Chemistry	2	..	..	..	..	..	..	..	..	..	..	..	..
" " Pedagogy	..	..	..	..	..	..	..	..	..	60	..	..	..
" " Philosophy	8	21	..	..	..	..	..	..	..	..	..	..	34
" " Physics	14	11	..	..	..	..	..	..	..	..	..	..	6
" " Physiology	2	4	..	..	..	..	..	..	..	..	..	..	..
" " Physiol. Hygiene	2	..	..	..	..	..	..	..	..	..	..	..	..
" " Political Science	4	7	..	..	..	..	..	..	..	..	3	..	5
" " Psychology	2	7	..	..	..	..	..	..	..	..	..	..	28
" " Romance Languages	1	13	..	..	..	..	..	..	..	..	..	..	8
" " Semitics	5	2	..	..	..	..	..	..	..	..	..	..	..
" " Surgery	..	..	4	..	..	..	..	..	..	..	..	..	..
" " Special Committee	..	1	..	..	..	..	..	..	..	..	..	..	..
Totals	107	174	4	10	1	1	1	2	2	60	20	3	158

(*h*) RESULTS OF THE ANNUAL EXAMINATIONS
FACULTY OF ARTS
First Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Transferred	Failed	Aegrotat	Deferred	Debarred
Pass	..	221	52	25	69	367	181	92	..	94	3	..	50
Supplementals	..	31	8	7	10	56	42	14					
Classics	..	8	7	3	1	19	16	..	2	1	..	..	..
Latin (French or Greek Option)	..	5	14	2	3	24	17	2	4	1	..	..	..
Modern Languages	..	21	22	11	3	57	55	..	2	..	1	..	..
English and History	..	34	31	7	4	76	52	2	21	1	1	..	..
Modern History	..	3	5	2	..	10	6	..	4	..	..	..	..
Political Science and Law	..	18	9	5	..	32	18	..	11	3	..	..	..
Philosophy	..	2	..	..	..	2	2	..	..	..	..	..	..
Philosophy (English or Hist. Option)	..	..	3	..	..	3	2	..	1	..	..	..	..
Psychology	..	3	2	..	..	5	4	1	..	..	..	..	..
Mathematics	..	4	4	1	..	9	5	..	4	..	..	..	..
Maths. & Phys., Phys. & Chem., and Phys. & Geol.	..	19	15	2	1	37	25	..	12	..	..	..	..
Natural and Physical Sciences	..	32	37	6	1	76	57	11	8	..	..	2	2
Household Economics	..	22	16	1	1	40	38	..	2	..	1	..	..
Commerce and Finance	..	90	41	5	5	141	72	26	43	..	4	3	4
Occasional Students	1	10	..	..	..	11	8	3	..	..	..	..	..
Totals	1	523	266	77	98	965	600	151	114	100	10	5	56

Second Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Transferred	Failed	Aegrotat	Deferred	Debarred
Pass	..	187	116	46	69	418	250	81	..	87	4	..	20
Supplementals	..	28	18	7	10	63	39	24	..	..	2	..	..
Classics	..	4	4	3	3	14	10	1	3	..	..	..	..
Greek and Hebrew	..	2	..	..	..	2	2	..	..	..	1	..	..
Oriental Languages	..	2	1	1	..	4	3	1	..	..	..	..	..
Latin (French or Greek Option)	..	1	4	1	3	9	4	..	5	..	..	..	..
Modern Languages	..	33	20	9	3	65	50	1	14	..	..	..	1
English and History	..	16	21	5	4	46	43	..	3	..	3	..	..
Modern History	..	9	11	5	..	25	22	..	3	..	2	..	..
Political Science and Economics	..	21	12	4	..	37	28	..	8	1	3	..	..
Law	..	15	11	5	..	31	20	..	8	3	..	..	..
Philosophy	..	11	12	..	8	31	23	6	2	..	1	1	2
Philosophy (English or Hist. Option)	..	1	7	..	2	10	10	..	..	..	..	..	..
Psychology	..	6	..	..	..	6	4	1	1	..	..	1	1
Mathematics	..	4	3	1	1	9	4	2	1	2	..	1	1
Mathematics and Physics	..	19	15	2	1	37	19	..	13	5	3	..	1
Physics and Chemistry	..	1	1	..	1	3	3	..	..	..	1	..	..
Physics and Geology	..	..	..	..	1	1	1	..	..	..	..	..	..
Physics	..	1	..	..	..	1	..	1	..	..	..	..	..
Biology	..	1	4	..	..	5	4	..	1	..	..	..	..
Physiology and Biochemistry and Biological and Medical Sciences	..	13	8	3	..	24	15	7	2	..	..	..	..
Chemistry	..	2	..	1	1	4	3	1	..	..	..	..	..
Chemistry, Mineralogy and Geology	..	2	2	..	..	4	3	1	..	..	..	..	..
Household Economics	..	14	25	1	1	41	29	12	..	..	..	2	2
Commerce and Finance	..	76	24	6	..	107	53	18	27	9	1	..	3
Occasional Students	9	5	..	..	..	14	8	6	..	..	..	..	..
Totals	9	474	319	100	109	1011	650	163	91	107	21	5	31

Third Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Transferred	Failed	Aegrotat	Deferred	Debarred
Pass	..	144	84	38	48	314	231	47	..	36	8	..	12
Supplementals	..	17	10	1	6	34	28	6	..	..	..	..	..
Classics	..	6	5	3	3	17	11	..	6	..	1	..	2
Oriental Languages	..	..	1	..	..	1	1	..	..	..	..	..	..
French, Greek and Latin	..	..	..	..	2	2	1	1	..	..	..	..	..
Modern Languages	..	20	16	6	6	48	43	..	5	..	..	..	..
English and History	..	13	11	2	5	31	30	..	..	1	..	..	..
Modern History	..	1	5	..	..	6	6	..	..	..	..	..	..
Political Science and Economics	..	13	3	5	..	21	19	..	2	..	2	..	..
Law	..	7	1	3	2	13	12	..	1	..	2	..	1
Philosophy	..	4	4	4	8	20	16	2	2	..	1	1	3
Philosophy (English or History Option)	..	1	3	..	..	4	4	..	..	..	..	..	.
Psychology	..	4	..	..	..	4	3	1	..	..	..	1	2
Mathematics	..	2	1	..	..	3	2	1	..	..	..	..	..
Mathematics and Physics	..	5	6	1	1	13	12	1	..	..	..	..	..
Physics and Chemistry	..	1	..	1	..	2	1	1	..	..	..	..	..
Biology	..	2	4	1	..	7	7	..	..	..	..	..	..
Biological and Medical Sciences	..	5	5	1	1	12	7	..	5	..	..	..	2
Chemistry	..	3	1	..	..	4	2	2	..	..	..	1	1
Chemistry, Mineralogy and Geology I	..	6	..	..	..	6	4	2	..	..	..	..	..
Chemistry, Mineralogy and Geology II	..	2	..	..	..	2	2	..	..	..	..	..	..
Geology and Mineralogy	..	1	..	..	..	1	1	..	..	..	..	..	..
Household Economics	..	12	13	..	..	25	21	2	2	..	..	..	3
Commerce and Finance	..	50	12	7	1	70	44	16	8	2	1	1	5
Occasional Students	1	3	..	..	1	5	4	1	..	..	..	..	..
Totals	1	322	185	73	84	665	512	83	31	39	15	4	31

Fourth Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Failed	Aegrotat	Degree without Honours
Pass		120	71	39	44	274	236	27	11	5	..
Supplementals		3	4	..	..	7	5	2	..	..	..
Classics		2	5	2	..	9	9	..	..	2	..
Oriental Languages		3	..	1	..	4	3	1	..	..	..
Hebrew and Ancient History		1	1	..	..	2	2	..	..	..	..
French, Greek and Latin		2	2	..	..	4	4	..	..	..	..
Modern Languages		17	13	7	6	43	43	..	..	..	..
English and History		16	18	5	3	42	42	..	..	..	2
Modern History		9	9	1	..	19	19	..	..	1	..
Political Science (Economics)		2	11	2	..	15	15	..	..	..	..
Political Science (Politics and Law)		12	..	..	..	12	12	..	..	..	1
Philosophy		4	5	..	7	16	15	1	..	..	..
Philosophy (English or History Option)		..	5	..	..	5	5	..	..	..	..
Psychology		2	1	..	..	3	3	..	..	..	..
Mathematics		1	4	..	..	5	5	..	..	..	..
Mathematics and Physics I		..	2	..	..	2	2	..	..	..	1
Mathematics and Physics II		2	3	..	..	5	5	..	..	..	..
Mathematics and Physics III		1	1	..	..	2	2	..	..	1	..
Physics and Chemistry		1	..	..	..	1	1	..	..	..	..
Biology		4	1	1	..	6	6	..	..	..	..
Physiology and Biochemistry		2	1	..	..	3	3	..	..	..	..
Biological and Medical Sciences		7	8	2	..	17	17	..	..	1	..
Chemistry		2	1	1	..	4	4	..	..	..	..
Chemistry, Mineralogy and Geology II		1	..	..	..	1	1	..	..	..	..
Geology and Mineralogy		..	1	..	..	1	1	..	..	..	..
Household Economics		14	9	1	..	24	24	..	..	..	..
Commerce and Finance		21	13	4	..	38	38	..	..	1	..
Occasional Students	2	3	..	..	..	5	4	1	..	..	..
Totals	2	252	189	66	60	569	526	32	11	11	4

TEACHERS' CLASSES

All Years

	Passed	Conditioned	Total
May Examination	158	88	246
September Examination	187	48	235
	345	136	481
Duplicates			147
Totals			334

FACULTY OF MEDICINE

	Passed	Conditioned	Failed
First Year	77	43	15
Second Year	90	24	5
Third Year	71	25	5
Fourth Year	102	15	2
Fifth Year	130	22	..
Sixth Year	126	2	..
Diploma in Public Health	12	..	..
B.Sc. (Med.)	6	..	1
Totals	614	131	28

FACULTY OF APPLIED SCIENCE AND ENGINEERING

	Passed with Honours	Passed	Conditioned	Failed
First Year—				
Civil Engineering	8	33	12	8
Mining Engineering	2	19	8	8
Mechanical Engineering	6	54	23	26
Architecture	2	15	4	2
Chemical Engineering	12	45	19	17
Electrical Engineering	16	65	20	12
Metallurgical Engineering	2	9	2	1
Second Year—				
Civil Engineering	..	14	9	15
Mining Engineering	2	15	9	4
Mechanical Engineering	5	47	24	18
Architecture	2	11	7	2
Chemical Engineering	7	41	17	7
Electrical Engineering	5	35	17	11
Metallurgical Engineering	..	5	1	..
Third Year—				
Civil Engineering	2	17	1	4
Mining Engineering	2	23	8	1
Mechanical Engineering	7	29	11	3
Architecture	4	9	3	..
Chemical Engineering	8	24	9	3
Electrical Engineering	3	29	13	5
Metallurgical Engineering	..	3	1	..
Fourth Year—				
Civil Engineering	2	11	1	1
Mining Engineering	4	16	..	..
Mechanical Engineering	5	29	7	..
Architecture	2	7	1	..
Chemical Engineering	10	32	..	..
Electrical Engineering	8	32	11	2
Metallurgical Engineering	1	7	2	..
Totals	127	676	240	150

FACULTY OF HOUSEHOLD SCIENCE

	Passed	Conditioned	Transferred	Failed
First Year	29	19	2	14
Second Year	37	15	..	7
Third Year	51	2	..	..
Fourth Year	36	4	..	..
Occasional students	2	1	..	..
Totals	155	41	2	21

ONTARIO COLLEGE OF EDUCATION

	Passed	Failed
*High School Assistants' Course	377	..
Specialists' Courses	175	..
First Class Public School Course	28	..
Elementary Art Course	46	..
Specialists' Art Course	15	..
Elementary Commercial Course	1	..
Elementary Commercial Course (passed in part)	73	..
Elementary Music Course	15	..
Elementary Physical Education Course	133	..
Specialists' Physical Education Course	47	..
One Year Household Science Course	11	..
Librarians' Course	26	..
Bachelor of Pedagogy Course	37	..
Bachelor of Pedagogy Course (passed in part)	112	..
Number who failed in whole or part	..	91
Totals	1,096	91

*Many of these are included among those who passed or failed in the other courses in this list.

FACULTY OF FORESTRY

	Honours	Conditioned	Failed
First Year	11	3	3
Second Year	8	1	4
Third Year	11	2	..
Fourth Year	18	..	..
Totals	48	6	7

FACULTY OF MUSIC

	Passed	Conditioned	Failed
First Year	4	..	1
Second Year	3	7	8
Third Year	1	6	3
Doctor of Music	1	..	1
Totals	9	13	13

FACULTY OF DENTISTRY

	Passed	Conditioned	Failed
First Year	22	11	4
Second Year	33	3	3
Third Year	28	2	1
Fourth Year	32	2	..
Fifth Year	60	6	1
B.Sc. (Dent.) Candidates	6	1	..
Dental Nurses	21	..	..
Totals	202	25	9

DEPARTMENTS

The numbers examined in the different departments of the University, including those persons granted standing for military service, were as follows:

Arts:		
Fourth Year	569	
Third Year	665	
Second Year	1011	
First Year	965	
Teachers' Course	334	
Graduates (Specialist Standing)	41	
		3,585
Medicine:		
Sixth Year	128	
Fifth Year	152	
Fourth Year	119	
Third Year	101	
Second Year	119	
First Year	135	
D.P.H.	12	
B.Sc. (Med.)	7	
		773
Applied Science and Engineering:		
Fourth Year	137	
Third Year	150	
Second Year	225	
First Year	314	
		826
Household Science		219
Education		1187
Forestry		61
Music		35
Graduate Studies		500
Dentistry		236
Social Science		62
Public Health Nursing		48
Law		13
Pharmacy		249
Agriculture		54
Veterinary Science		20
Local Examinations in Music		19,898

(*i*) ADMISSION TO DEGREES:

	Men	Women	Total
LL.D. (Honorary)	5	...	5
D.Sc. "	1	...	1
D.Eng. "	1	...	17
Ph.D.	12	5	91
M.A.	64	27	1
M.S.	1	...	1
M.A.Sc.	12	...	12
M.Arch.	1	...	1
C.E.	1	...	1
E.E.	1	...	1
Mech.E.	2	...	2
D.Paed.	3	1	4
M.S.A.	5	...	5
B.A.	232	282	514
B.Comm.	38	1	39
M.D.	174	15	189
M.B.	1	...	1
B.Sc. (Med.)	5	1	6
B.A.Sc.	123	...	123
B.Arch.	7	...	7
B.H.Sc.	...	37	37
B.Paed.	31	6	37
B.Sc.F.	18	...	18
Mus. Doc.	1	...	1
Mus. Bac.	1	...	1
D.D.S.	59	...	59
B.Sc. (Dent.)	6	...	6
LL.M	1	...	1
LL.B.	3	...	3
B.S.A.	52	1	53
B.V.Sc.	20	...	20
Phm.B.	122	6	128
Totals	1,003	382	1,385

(*j*) GEOGRAPHICAL DISTRIBUTION OF STUDENTS:

FACULTY OF ARTS

	University of Toronto	University College	Victoria College	Trinity College	St. Michael's College	Duplicates	Totals
Ontario: (1) Province	387	629	537	154	140	22	1,825
(2) Toronto	332	918	346	131	164	10	1,881
Nova Scotia	..	4	1	2	1	..	8
New Brunswick	..	6	5	2	1	..	14
Prince Edward Island	..	2	..	..	..	..	2
Quebec	4	1	..	1	3	..	9
Manitoba	3	3	1	..	1	..	8
Saskatchewan	2	9	22	1	2	..	36
Alberta	2	15	10	3	3	1	32
British Columbia	2	2	2	3	..	1	8
United States	6	23	7	8	23	1	66
Elsewhere	3	14	15	2	1	..	35
Totals	741	1,626	946	307	339	35	3,924

THE UNIVERSITY

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	Department of Social Science	Department of Public Health Nursing	Course in Occupational Therapy	Course for Graduate Nurses	Physiotherapy	Registered Twice	TOTALS
Ontario:																
(1) Province	1,847	340	444	72	462	31	12	185	106	31	152	15	12	5	45	3,669
(2) Toronto	1,891	371	361	142	216	25	19	217	70	53	68	21	2	15	41	3,430
Nova Scotia	8	6	1	..	6	..	..	18	3	6	1	..	..	..	..	49
New Brunswick	14	3	..	..	7	..	1	11	..	4	4	..	..	..	1	43
Prince Edward Island	2	1	..	..	..	..	..	2	1	3	2	..	..	..	..	11
Quebec	9	8	1	1	4	2	..	6	4	3	2	..	..	..	..	40
Manitoba	8	4	1	..	11	..	..	11	18	3	2	..	..	..	..	53
Saskatchewan	36	27	21	2	10	1	2	18	21	4	7	..	..	..	1	148
Alberta	33	9	3	5	2	..	1	10	1	2	2	..	..	..	2	66
British Columbia	9	30	3	5	12	..	..	16	1	3	2	..	..	..	1	80
Yukon	..	1	1	..	..	..	..	..	..	..	..	..	..	..	..	2
United States	67	11	3	3	9	..	10	25	13	2	..	..	1	..	1	143
Elsewhere	35	9	11	..	7	3	..	24	6	8	1	..	4	..	..	108
Totals	3,959	820	850	230	746	62	45	543	244	122	243	36	19	20	92	7,847

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	Department of Social Science	Department of Public Health Nursing	Course in Occupational Therapy	Course for Graduate Nurses	Physiotherapy	Registered Twice	TOTALS
Algoma	35	7	8	3	5	1	..	..	4	1	1	..	..	..	3	62
Brant	44	9	14	1	8	..	1	2	3	1	5	1	1	..	2	88
Bruce	33	9	7	..	5	..	..	5	8	..	7	..	1	..	1	74
Carleton	77	9	12	7	23	1	1	15	5	..	6	1	..	..	..	157
Cochrane	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	4
Dufferin	15	5	3	..	3	..	..	4	2	..	1	1	1	..	..	35
Dundas	9	1	2	..	6	..	..	..	..	..	2	..	..	..	..	20
Durham	25	3	8	1	6	..	..	2	..	..	3	..	..	..	..	48
Elgin	21	1	3	..	8	..	..	4	4	..	2	..	..	..	..	43
Essex	41	13	15	1	12	1	..	6	8	1	..	..	..	..	2	96
Frontenac	24	..	..	2	13	..	1	1	2	..	2	..	2	..	1	46
Glengarry	6	1	..	1	4	..	..	..	1	..	..	..	..	..	1	12
Grenville	12	1	1	..	4	..	..	2	..	..	..	..	..	..	1	19
Grey	69	9	15	3	14	..	..	4	1	1	2	2	..	..	2	118
Haldimand	23	6	11	1	5	..	..	..	..	..	1	..	..	..	1	46
Haliburton	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Halton	50	7	11	4	4	1	1	5	..	2	7	..	..	1	..	93
Hastings	27	6	4	..	13	..	..	4	2	1	2	1	..	..	2	58
Huron	42	7	16	1	19	3	..	3	2	1	6	..	..	..	2	98
Kenora	6	..	2	..	1	..	..	..	..	..	..	..	..	..	..	9
Kent	18	7	6	1	7	..	..	1	4	..	..	..	..	..	2	42
Lambton	35	5	12	2	5	..	..	3	3	..	2	..	..	1	..	68
Lanark	26	3	5	..	9	..	..	4	3	..	1	1	1	..	..	53
Leeds	19	..	3	..	6	2	..	2	1	..	2	..	..	..	..	35
Lennox & Addington	11	..	1	2	5	..	..	..	..	..	..	..	..	..	..	19
Lincoln	61	11	16	5	10	1	1	8	1	..	3	..	..	..	3	114
Manitoulin	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2
Middlesex	22	2	12	2	34	1	..	13	4	3	7	..	..	..	..	100
Muskoka	14	1	6	..	2	..	..	3	3	..	2	..	..	..	..	31
Nipissing	14	11	2	..	3	..	..	5	1	2	6	3	..	..	..	47
Norfolk	16	9	4	1	4	1	1	4	4	1	1	..	..	..	1	45
Northumberland	29	6	3	1	9	..	..	5	..	..	6	..	..	..	..	59
Ontario	66	12	7	3	9	..	1	4	1	1	4	..	1	..	1	108
Oxford	47	7	23	1	18	..	1	4	..	..	1	..	..	..	..	102
Parry Sound	10	1	3	..	..	1	..	..	..	..	3	..	..	..	..	18
Peel	57	9	8	1	5	1	..	2	1	1	3	..	..	..	3	85
Perth	72	9	17	..	13	2	..	3	3	1	5	..	..	..	1	124
Peterborough	41	7	7	1	10	..	..	..	2	..	2	..	..	..	1	69
Prescott	2	..	..	..	3	..	..	..	1	..	2	..	..	..	1	7
Prince Edward	6	3	1	..	3	..	..	1	..	..	1	..	..	..	..	15
Rainy River	17	2	..	..	..	..	..	..	..	..	..	..	1	..	..	20
Renfrew	21	2	4	..	12	2	..	2	2	..	1	..	..	..	1	45
Russell	1	..	1	..	1	..	..	1	1	..	..	..	..	..	..	5
Simcoe	95	18	20	8	18	3	1	4	2	3	7	..	1	..	2	178
Stormont	9	4	1	..	1	..	..	1	..	..	3	..	..	..	..	19
Sudbury	11	2	2	1	..	..	..	..	..	..	..	..	..	..	1	15
Thunder Bay	19	3	9	..	8	2	1	..	4	..	2	..	..	..	1	47
Timiskaming	15	5	10	..	5	1	..	..	3	..	1	..	..	..	..	40
Victoria	28	7	4	1	5	..	..	1	1	1	4	..	..	..	1	51
Waterloo	76	14	12	1	9	..	1	7	3	1	3	..	1	..	1	127
Welland	59	10	15	1	10	..	..	1	2	2	5	..	..	..	1	104
Wellington	76	18	14	4	13	2	..	22	2	1	7	..	..	..	1	158
Wentworth	133	35	37	8	49	1	1	13	8	4	4	3	1	..	1	296
York	156	23	47	3	23	4	..	14	4	2	17	2	1	3	4	295
Toronto	1,891	371	361	142	216	25	19	217	70	53	68	21	2	15	41	3,430
Totals	3,738	711	805	214	678	56	31	402	176	84	220	36	14	20	86	7,099